



South Carolina Department of Health and Environmental Control

**Hospital Infections Disclosure Act
2009 Annual Report to the General Assembly
February 2009**

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2009 HIDA Annual Report to the General Assembly

Executive Summary

Introduction: This 2009 Annual HIDA Report on the progress in implementing the Hospital Infections Disclosure Act (HIDA) is being written to comply with the requirement to submit an annual report to the General Assembly and the public by Feb.1, 2009. This requirement is in the South Carolina Code of Laws, Department of Health and Environmental Control, CHAPTER 7. Statutory Authority: The S.C. Code Sections 44-7-2410, 44-7-2460 (2007 Cum. Supp.) (2006 S.C. Acts 293) “Hospital Infections Disclosure Act” (HIDA). In June of 2007, HIDA was amended to allow phasing in of reporting requirements.

This Executive Summary briefly describes the initial challenges in implementing HIDA, the NHSN data system selected for reporting, a discussion of findings, and identifies policy issues.

Implementation: HIDA Challenges and Successes

DHEC, with the advice of the HIDA Advisory Committee, and with existing resources, began work in September 2006 to implement HIDA. This law is intended to address one of the “Top Ten Public Health Problems” in the country as described by the CDC and a recent U.S. Department of Health and Human Services National Healthcare Associated Infections Action Plan. Since SC was one of the first states to pass a hospital acquired infections (**HAI**) mandatory public reporting law, there was a limited amount of experience upon which to build a program. Significant challenges included convening a large Advisory Committee, selecting a data system for reporting, and defining reporting requirements. The first report with six months of data was due by February 1, 2008. Therefore, hospitals had to begin collecting data and reporting it into a data system by July 1, 2007. During the short time frame before reporting began, hospitals and DHEC staff had to be trained in the new complex and labor intensive data system and go through an extensive system enrollment process for data confidentiality and security purposes. Since reporting began, much progress has been made in achieving a standardized HAI public reporting system. **This HIDA Progress Report is described in the following report.**

Acknowledgements: DHEC gratefully acknowledges that the HIDA achievements were made possible by the combined efforts of DHEC staff and the hospitals’ infection prevention staff, the active participation of the HIDA Advisory Committee and subcommittees, and the effective partnerships established with the Association of Professionals in Infection Control and Epidemiology (APIC-Palmetto), the SC Hospital Association (SCHA), and the S.C. Office of Research and Statistics (ORS).

Data Systems:

NHSN Data System:

Surgical Site Infections and Central Line Associated Bloodstream Infections:

The National Healthcare Safety Network (NHSN) system was selected as the primary HIDA data reporting system for surgical site infections and central line associated bloodstream infections. The NHSN was a “ready to use” system and did not require additional funding or time for DHEC to develop an HAI data reporting system. There is **no** financial charge for states to use the federally funded CDC NHSN system. The CDC develops data standards, and provides data security, maintenance, and future upgrades.

NHSN is a key reason that South Carolina has made significant and rapid progress. However, the complexity of the system also presented the primary challenges that the hospitals and DHEC have had in implementing the law. Many of these challenges continue and are listed here and discussed further in this report.

Bureau of Disease Control - List of Reportable Conditions:

Carolinas Health Electronic Surveillance System (CHESS):

MRSA Bloodstream Infections: In addition to NHSN, other data systems may be used for HIDA reporting. Beginning in January 2008, clinical laboratories began reporting MRSA positive blood culture results as required on the DHEC List of Reportable Conditions. These lab results will be matched with the Office of Research and Statistics hospital discharge data set to determine if the MRSA bloodstream infection was hospital associated. By linking two existing data reporting systems for MRSA reporting, this method does not add to the burden of reporting for the infection prevention staff. While there are limitations to this method, it is anticipated that the results will provide helpful information to monitor MRSA bloodstream infections in South Carolina without adding to the burden on hospital staff. (**Appendix B**)

Discussion of Findings:

Data: The 2009 HIDA Annual HAI Public Reports are posted on the DHEC website www.scdhec.gov/health/disease/hai/reports.htm. The reports contain the **Individual Hospital HAI Reports** with infection rates for all procedures performed at each hospital. When looking at infection rates, it is important to be cautious about interpreting or comparing data. For example, infection rates may vary widely by simply adding one to a small number. Also, the **HAI Comparison Summary and Comparison Tables** can be found on the web site and attached in **Appendix C**. These comparisons use a Standardized Infection Ratio method to compare hospitals as described below.

DHEC has assessed the accuracy and completeness of the data as described in the **HIDA Validation Report** in this document.

The first HIDA Annual Report includes data from the 17 month time period from the first hospital reports on July 1, 2007 through November 30, 2008. Future reports will be for a 12 month time period and will provide an analysis of trends over time with methods to be determined. No previous reports are available for comparison. DHEC and the HIDA Advisory Committee will continue to evaluate the reporting requirements, data systems, and the format and content of the

public reports to adjust the process as needed. For the Executive Summary, the data are summarized in a brief discussion below.

This is the first HIDA Annual Report requiring a comparison report. Many factors must be considered when attempting to compare HAI rates across hospitals. These include the total number of procedures performed, the statistical effect of small numbers, risk adjusted rates, and the increased risk for infections for patients referred to medical centers for high risk care.

The Standardized Infection Ratio (SIR) is being used in other states to compare hospitals with a standard measure and has been recommended as the appropriate method by the Centers for Disease Control and Prevention (CDC). DHEC selected the SIR as the measure to compare each hospital's SIR to that of the standard population in NHSN. The SIRs are anticipated to change over time as infection rates are reduced through prevention efforts.

The Standardized Infection Ratio (SIR) is a summary measure used to compare the surgical site infection (SSI) and central line infection (CLABSI) experience for the reportable procedures to that of a standard population. It is the *observed* number of infections divided by the *expected* (predicted) number of infections. The “expected” number of infections does not mean that someone should expect to get an infection when they go into the hospital. Nor does it mean that hospitals should be satisfied with having infection rates that are similar to the standard population. Many HAIs are preventable, so while it may not be possible to prevent all HAIs, the goal is to work toward HAI elimination.

2009 HAI Comparison:

In the 2009 Summary Data for the HAI Comparison Report, the majority of South Carolina hospitals are statistically “not different” from the standard population for most surgical procedures and hospital central line locations. The data are presented in the Tables in **Appendix C** and summarized here.

Surgical Procedures: For the Coronary artery bypass graft (chest and donor incision), fifty-six (56%) percent of SC hospitals had lower (better) SIRs, forty-four (44%) percent were not different than the standard, and none were higher than the standard. For one other procedure (abdominal hysterectomy), 2% of the hospitals had lower SIRs. For five of the seven surgical procedures, 2% up to 8% of hospitals had a higher SIR than the standard. These higher SIRs were for gallbladder surgery, hysterectomy (abdominal and vaginal), and hip and knee replacement. Coronary artery bypass graft (chest and donor incision and chest only) were the two surgical procedures with no hospitals with an SIR above the standard population.

Central Line Associated Bloodstream Infections: As expected, for the eight types of hospital locations reporting central line associated bloodstream infections, SIRs are generally higher in the critical care units than in the inpatient wards. Compared to the standard, the majority of locations are statistically **not** different. For two locations, Medical Surgical Critical Care (5%) and Surgical Critical Care (20%) of hospitals reported SIRs lower than standard. Five of the eight locations had SIRs higher than the standard for the following percentage of hospitals: Medical / Surgical Inpatient Wards (4%), Medical Critical Care (9%), Medical-Surgical Critical Care (10%), Medical Inpatient Ward (17%), and Pediatric Critical Care (20%).

Methicillin Resistant *Staphylococcus Aureus* (MRSA) Bloodstream Infections:

See **Appendix B** for the Methodology & the Preliminary Report.

- **Laboratory Reporting & Hospital Discharge Billing Data:** This method was developed to estimate MRSA bloodstream infection rates using existing data systems. The data are limited to the information available in the two data collection systems and are not collected directly from the patient records.
- Preliminary results with data match still incomplete:
 - 77.9% were categorized as community associated MRSA infections
 - 22.1% were categorized as possible hospital acquired MRSA.
- **NHSN Central Line Infections: (See Appendix C -CLABSI Report –Table 6)**
 - Methicillin resistant *Staphylococcus aureus* (MRSA) organisms isolated as a percentage of the total positive isolates = 8.3 %

Policy Issues:

While DHEC and the HIDA Advisory Committee have not developed specific policy recommendations, the following issues have been discussed.

One concern is the lack of established staffing and training standards for infection prevention specialist in hospitals. Also, there is no formal infection prevention training program in South Carolina. These factors have had a negative impact on hospital efforts to sustain infection prevention programs, especially with the increased need for specialty training and the high turnover for these positions.

DHEC will continue to participate with the SCHA and Health Sciences South Carolina to ensure public health representation in the collaborative efforts to prevent HAIs. HIDA reporting requirements will be selected and results will be available to measure outcomes for the prevention efforts across the state.

DHEC will complete the process to develop HIDA Regulation.

The state budget cuts have impacted the HIDA program by reducing staff time and travel funds for validation site visits. DHEC will discuss the issues with the HIDA Advisory Committee to identify options for managing these cuts. In discussions with the legislature, DHEC has already identified that phasing in of additional reporting criteria will likely need to be deferred.

DHEC's request to amend HIDA was discussed with the HIDA Advisory Committee. The request to move the date that the Annual Report is due was made to allow more time to complete the public reports. As currently written, there is not enough time between the date the reports are due to DHEC and the date that DHEC is required to submit the report. Also the department requested permission to impose civil monetary penalties for failure to comply with HIDA.

2009 HIDA Annual Report to the General Assembly

Background

Infections that patients acquire while receiving medical treatment in hospitals, nursing homes, outpatient surgery centers and dialysis clinics are a major public health problem in the United States. These infections are called healthcare-associated infections.

Patients can get them from routine care, surgery, as a complication from medical devices such as ventilators, catheters, and lines, or as a side effect of the overuse of antibiotics.

While patients are often admitted to hospitals with infections acquired in other healthcare settings or in the community, the **HIDA HAI Public Reports** refer only to those infections that meet standardized definitions for hospital acquired infections.

The U.S. Centers for Disease Control and Prevention (CDC) estimates that 1.7 million healthcare-associated infections occur in U.S. medical facilities each year. These infections result in as many as 99,000 deaths and nearly \$20 billion in additional healthcare costs annually. (The estimates are based on 2002 data.)

The 2006 Hospital Infections Disclosure Act (HIDA) was one of the first state laws with the goal of providing fair, accurate, and comparable information about hospital infection rates to consumers. The law was passed as a result of increasing concern about hospital acquired infections (HAIs) and consumer interest in getting information about infection rates and quality of care in hospitals. HIDA was an important step toward promoting HAI prevention and measuring the progress toward eliminating HAIs in South Carolina.

National policy makers have also recognized the impact of HAIs and the significant increase in public demand for healthcare quality information. Congressional hearings in 2008 identified HAIs as a significant public health problem and pointed out the lack of coordination at the federal level to address the problem. In response, the U.S. Department of Health and Human Services (DHHS) convened a committee of experts to draft a national Action Plan to Prevent Healthcare-Associated Infections for public comment. A national action plan will have a significant impact upon the SC HIDA program by providing scientific guidance, improved collaboration between federal, state, and local partners, and potential resources to address the problem. The draft Action Plan can be found on the DHHS Website <http://www.hhs.gov/ohps/>.

The topic of healthcare associated infections (HAIs) has been identified as one of the “top ten” public health problems in the nation. Numerous state and federal agencies and professional organizations are developing and issuing plans, guidelines, and mandates for HAIs to include prevention, surveillance, and reimbursement for care.

In South Carolina, a broad range of opportunities may be available through the Duke Endowment funded Health Sciences South Carolina (HSSC). The problem of healthcare associated infections (HAIs) was selected as their first major initiative to improve healthcare in South Carolina. Also, in line with the goals of the Action Plan to Prevent HAIs, the U.S. Department of Health and Human Services is working to coordinate response in the federal agencies including the Centers for Disease Control and Prevention (CDC), Centers for Medicare and Medicaid (CMS), and the

Agency for Healthcare Research and Quality (AHRQ) and national professional organizations. The CDC has proposed grants to implement strategies to prevent HAIs across the continuum of care in the community and healthcare facilities (including long term care, rehabilitation, dialysis, and inpatient and outpatient hospitals).

In addition to public reporting for HIDA, the NHSN data will be used to measure outcomes of these prevention efforts. The fact that South Carolina hospitals are using NHSN and providing outcome measures, improves the opportunities for grants to fund prevention initiatives.

Comparing Hospitals:

This is the first time hospitals have been required to use standard definitions and the same data information system. The NHSN system requires trained and knowledgeable infection control staff. Gathering all the information needed to risk adjust and calculate the rates, requires a lot of time and resources and a standard process to compare hospital data. All these issues, and more, affect the data quality in terms of comparing hospitals.

The NHSN system requires hospitals to use a standard way of surveillance (case finding). Active surveillance for infections while the patient is still in the hospital has been standardized. When patients develop HAI symptoms post discharge, then there is not a standardized way to find these patients. These infections are frequently treated in the outpatient setting and are not reported to the hospital. Some hospitals may actively pursue reports by calling or writing letters to patients and physicians to find these infections with varying degrees of success. Also, larger hospitals may have an electronic medical record that is available throughout the hospital and in associated outpatient clinics. The hospital IPs can easily see surgical site infections documented in the outpatient record. Hospitals without these resources cannot find as many cases. So a hospital may have a higher surgical infection rate than another hospital because they are doing a better job of post discharge surveillance, not necessarily because they have more infections. This is generally an issue for “superficial” less severe wound infections. Patients who are sick enough to be readmitted to the hospital will be identified as a readmission. Currently all reportable infections that are identified must be reported into NHSN. Efforts are underway to define a way to clarify the issue of post discharge surveillance. Validating (evaluating) the completeness and accuracy of the data is an ongoing process for DHEC. With this validation process, DHEC can identify inpatient and readmission infections, but not post discharge infections treated in the outpatient setting.

Benefits: The HIDA reports will help promote infection prevention efforts and allow the public and state health officials to measure the state’s progress in reducing or eliminating HAIs. The fact that the NHSN data are available as an outcome measure for prevention efforts has made it possible for SC to be eligible for additional resources to prevent HAIs.

Burden of Reporting: Hospitals are concerned that HIDA reporting has placed a significant burden upon the hospital infection prevention (IP) staff. The NHSN system takes more time to collect and report infections than the hospital’s own internal surveillance systems, leaving significantly less time available to implement and monitor infection prevention efforts. There is a shortage of experienced infection prevention staff and the high turnover in these positions has been attributed to increased stress caused by the new reporting requirements in the face of staffing shortages. New IPs need access to specialty training in healthcare infection prevention.

Planning and Implementing HIDA

The first step in implementing HIDA was to establish an internal DHEC HIDA Workgroup to identify existing resources to plan and implement the law. A coordinator was named for the planning process and to facilitate the creation of the Advisory Committee and the meetings. State funding to hire DHEC staff to implement the law was identified in the Bureau of Disease Control budget in July 2007. These staff included the HIDA coordinator who became the program manager and an epidemiologist who began fulltime in December, 2007 and the infection preventionist (IP) began in February 2008.

HIDA Advisory Committee (Appendix A: Members, current and past)

The HIDA Advisory Committee has been instrumental in providing DHEC with the variety of perspectives and the subject area expertise to develop the program. The original thirty member committee of five representatives from the six categories defined in the law is now a twenty four member committee of four members per category. The Advisory Committee met for the first time on September 13, 2006 and, after orientation to the topic of hospital acquired infections and HIDA requirements, it was immediately apparent that much work was needed to meet the legislative deadline for the first HIDA report on February 1, 2008. The committee continued meeting almost every two weeks for the rest of 2006. Meetings have been held almost monthly since then.

HIDA Progress Summary: Since HIDA was passed into law on May 31, 2006, the following milestones have been achieved.

- Created the HIDA Advisory Committee with meetings almost every month since September 2006. In the first five months, the meetings were held about every two weeks.
 - Selected the CDC National Healthcare Safety Network (NHSN) data system for HIDA Reporting
 - In addition to the HIDA program manager, DHEC hired two new staff (Epidemiologist and Infection Preventionist) in December 2007 and February 2008. As a result of state budget cuts, a percentage of the program manager's time has been redirected to other duties and travel funds for hospital site visits to validate the data have been eliminated.
 - HIDA Advisory Committee Training Subcommittee – planned and coordinated NHSN training for hospitals in 2007 and 2008.
 - Defined surgical site infections and central line associated bloodstream infections reporting requirements and phased in additional requirements over time. Ventilator associated pneumonia (VAP) reporting has been deferred until a standardized case definition can be determined.
 - Added MRSA bloodstream infections to the DHEC List of Reportable Conditions requiring clinical laboratories to report positive MRSA blood cultures.
 - Developed methodology for MRSA bloodstream infections to be linked with the Office of Research and Statistics (ORS) hospital and emergency room discharge data so that community acquired infections could be separated from hospital acquired infections.
- (Appendix B)**

- Sixty-five acute care hospitals and eleven rehabilitation hospitals are now reporting their data to DHEC.
- DHEC HIDA staff provides hospitals with compliance assistance.
- Produced two (6) six month preliminary data reports of the Individual Hospital HAI reports with summary data and posted the reports on the DHEC web site.
- With the HIDA Advisory Committee, identified options for public reporting of comparable data to the public
- DHEC selected the Standardized Infection Ration (SIR) as the method to compare hospitals with the standard population using NHSN for this report.
- 2009 HIDA Annual Report (**HAI Comparison Tables –Appendix C**) - attached to this report to the General Assembly and posted on the HIDA public website.
- Future HAI Comparison reports will compare trends over time.
- 2009 Annual **Individual Hospital's HAI Summary Reports** are posted on the DHEC HAI website (17 months of data) www.scdhec.gov/hai. These reports are for all 17 months of data from the first reports on July 1, 2007 through November 30, 2008.
- DHEC has implemented the HIDA Validation Plan with summary results and recommendations described in this report.
- Hospitals submitted responses to a DHEC survey of selected infection prevention practices.
- DHEC is in the process of drafting HIDA Regulations
- DHEC staff are participating in an SCHA prevention initiative named the South Carolina Healthcare Alliance for Infection Prevention (SCHAIP), to work collaboratively on specific HAI prevention programs and activities, and also on the Health Sciences South Carolina HAI planning committee.

HIDA Data Reporting System

NHSN: This has also been discussed in the Executive Summary. Selecting a data system was a critical step toward implementing HIDA. For public reporting and comparison, each reporting hospital must use the same case definitions and surveillance reporting processes. The committee reviewed the data systems used by the few states that were reporting HAIs at the time. This review included the Centers for Disease Control and Prevention (CDC) system developed for use by hospitals as a voluntary quality improvement system. CDC had just announced that it would open up the National Healthcare Safety Network (NHSN) system for states with mandatory reporting laws. DHEC selected the NHSN because it includes the following key features: standardized case definitions and processes, risk adjusted rates, data security, system maintenance and upgrades, and there was no financial fee to the state for enrolling and using the system.

The complexity of the NHSN system also presented the primary challenges that the hospitals and DHEC have had in implementing the law. The Advisory Committee has had many discussions about their concerns that the labor intensive NHSN reporting process would take away from the time the hospital Infection Preventionists (IP) needs to focus on infection prevention activities. Changing the system to meet the needs of an individual state is often not possible without extensive changes by the CDC system developers. When possible, CDC has been responsive and made changes in the system that SC has suggested.

Each hospital reports to DHEC by “conferring rights” to the DHEC Group to go into NHSN to see their data and download the reports into a DHEC data base. Follow-up periods for case finding range from 30 days after a procedure to a full year for surgeries with implants such as hip and knee replacements. So data are not final until the end of those follow up periods.

DHEC List of Reportable Conditions: In addition to NHSN, other data systems may be used for HIDA reporting. Beginning in January 2008, clinical laboratories began reporting MRSA positive blood culture results as required on the DHEC List of Reportable Conditions. These lab results will be matched with the Office of Research and Statistics hospital discharge data set to determine if the MRSA bloodstream infection was hospital associated. By linking two existing data reporting systems for MRSA reporting, this method does not add to the burden of reporting for the IP staff. While there are limitations to this method, it is anticipated that the results will provide helpful information to monitor MRSA bloodstream infections in South Carolina. (**Appendix B**)

Program Costs and Training: There is **no** financial charge for states to use the CDC federally funded NHSN system. However, the need to standardize the data to allow for comparing hospitals means that the NHSN procedures are complex and labor intensive. Hospital staff must be trained in the use of NHSN. They must comply with data collection, data entry and timelines, and have expertise in infection control. The hospitals’ cost of implementing HIDA includes staff time diverted from infection prevention to surveillance (finding cases) and data entry.

DHEC costs consist of the staff and equipment needed to develop expertise in hospital acquired infections and in the NHSN system, to analyze, interpret and disseminate the data reports, and to assure the accuracy and completeness of the data. DHEC staff provide guidance and consultation to the hospitals in the use of NHSN and monitors compliance with reporting requirements.

Training for HIDA and NHSN is an important aspect of assuring the accuracy of the data. The Association of Professionals in Infection Control and Epidemiology (APIC-Palmetto) led the training effort in partnership with the SC Hospital Association (SCHA), and DHEC. Two separate training days held for hospitals in February 2007 before reporting began and a two day statewide training conference was held in April 2008. This training was also sponsored by AARP.

HIDA Reporting Requirements: (revised - beginning 12-1-08)

(*New procedures and locations added to the list – 12-1-09)

1. **Surgical Site Infections (SSI)** for the following procedures, in all hospitals where these procedures are performed (except where designated only for hospitals ≤ 200 beds).
 - Coronary Artery Bypass Graft (CBGB) (both chest and donor site incisions)
 - Coronary Artery Bypass Graft (CBGC) (with chest incision only)
 - Hysterectomy (vaginal- VHYS)
 - Hysterectomy (abdominal - HYST)
 - Cholecystectomy & cholecystotomy (CHOL)
 - Hip – prosthesis- (HPRO)
 - Knee – prosthesis – (KPRO)
 - * Colon (COLO) - (only report from hospitals of 200 beds or less)
 - * Spinal fusion (FUSN)
2. **Central Line Associated Bloodstream Infections (CLABSI)**, in all hospitals unless otherwise designated, in the following CDC NHSN defined “Locations” and ICD-9 Codes in the manual:
 - Adult Medical and/or Surgical Critical Care Units (all combinations of Medical and Surgical, unless designated as other Specialty Location.)
 - Pediatric Medical and/or Surgical Critical Care Units, (all combinations of Medical and Surgical, unless designated as other Specialty Location.)
 - * All inpatient locations- (in hospitals of **200** beds or less).
 - * Inpatient Rehabilitation

Specialty Care Areas

 - * (Long Term Acute Care (LTAC)
3. **Methicillin resistant *Staphylococcus aureus* (MRSA) bloodstream infection (BSI)**
 - MRSA bloodstream infections (BSI) were added to the **DHEC List of Reportable Conditions.** Clinical laboratories are required to report MRSA blood culture positive lab results.

HIDA Reports: Specific reporting requirements were determined by DHEC with the advice of the HIDA Advisory Committee and other requirements will be phased in over time. On July 1, 2007, hospitals began submitting data for selected surgical procedures for Surgical Site Infections (SSIs) and for selected hospital units “locations” for monitoring Central Line Associated Bloodstream Infections (CLABSI). The specific procedure reports are listed in the **HAI Comparison Charts in Appendix C** and on the web site. Individual Hospital HAI reports containing all the reports are available on the website www.scdhec.gov/hai, but are not included in this report.

In the “other” category, DHEC added methicillin resistant *Staphylococcus aureus* (MRSA) bloodstream infections to the clinical laboratory reporting requirements beginning in January 2008. These MRSA blood culture reports are being linked to existing hospital discharge data from the Office of Research and Statistics to help identify which of the positive MRSA cultures are

hospital associated versus community associated. A preliminary MRSA report is included in this report (**Appendix B**) and posted on the website.

Reporting of Ventilator Associated Pneumonia (VAP) has been deferred until a standardized definition can be developed to allow for comparing infection rates. Standardizing the VAP definition is a national issue and many experts in infection prevention are debating the definition and working on this goal.

Infection Prevention: Hospitals must report the completeness of certain infection control processes according to accepted standard definitions. The first Annual Infection Prevention (IP) Survey was submitted to DHEC on December 15, 2009. Summary results will be posted on the website www.scdhec.gov/hai when the analysis is complete. The IP Survey will be used to plan Infection Prevention reporting requirements.

The South Carolina Hospital Association (www.schanew.org) has provided leadership to promote best practices in the hospitals and to convene a statewide alliance to focus on prevention. The South Carolina Healthcare Alliance for Infection Prevention (SCHAIP) includes numerous partners including DHEC. The HIDA data will be used to measure the trends over time and the effectiveness of prevention measures.

South Carolina hospitals have been actively participating in new initiatives to prevent infections. Some of these are outlined on their websites. The South Carolina Hospital Association has summarized major initiatives below:

**South Carolina Hospital Association Summary Report
Collaborative Healthcare Associated Infection (HAI) Prevention Activities**

- Representatives from SCHA and a number of member hospitals have actively participated on the HIDA committee since its inception
- SCHA in conjunction with Palmetto APIC and DHEC have conducted multiple educational workshops for infection control professionals and other healthcare workers
- Sponsored a MRSA prevention learning collaborative for 20 South Carolina hospitals
- Established an alliance of healthcare providers, under the name South Carolina Healthcare Alliance for Infection Prevention (SCHAIP), to work collaboratively on specific HAI prevention programs and activities
- Created a partnership with Heath Sciences South Carolina and Premier, Inc. to actively link research, quality improvement and data analysis as it relates to HAI prevention.
- Established a partnership with Johns Hopkins Patient Safety Center focused on prevention of central line bloodstream infections

HIDA Validation Visits: 2008

“Assure the accuracy and completeness of the data”

HIDA requires that DHEC assures the quality of the HAI data. On site HIDA visits to validate accuracy and completeness of reports were conducted by DHEC personnel beginning in March 2008 and ending in December 2008 due to the budget reductions for travel.

Fifty-nine of the sixty-five acute care hospitals in South Carolina were visited by one or both of the DHEC staff. To look for reporting errors, during the site visits, the data reported into NHSN was compared with other information in the hospitals such as patient records, line lists from surgical procedures and laboratories, and readmissions. The DHEC staff answered questions about the reporting system, provided education to assist hospitals comply with HIDA, and offered suggestions for solutions to data systems problems that were affecting the data reports. The remaining hospitals will be visited as soon as travel funds are available. DHEC staff has been in contact with the 6 hospitals that were not visited, and they have reviewed any data submitted to NHSN to detect any obvious data entry errors

The first public report included data from July 1, 2007 to November 30, 2007 and the second report included data from December 1, 2007 to May 31, 2008. The Validation Visits reviewed data from either or both of these time periods depending on the date of the visit and the available data.

Limitations:

Gallbladder, Hip replacement, and Knee replacement surgeries were added on January 1, 2008. These procedures require ongoing monitoring for a full year to verify if a procedure-related infection has occurred. The follow-up time for surgeries requiring implants is one year and includes coronary artery bypass graft, hip and knee replacement, and gallbladder surgery using clips. The follow-up for other surgeries is 30 days after the procedure. Since reporting of these surgical procedures began January 1, 2008, a complete year of data will not be available until early in 2010. As a result, the actual final SSI rates will probably be higher.

Findings:

Surgical Site Infections (SSIs): Medical records for 1,955 patients who had reportable surgical procedures performed were reviewed to determine if there were any undetected SSIs. There were two SSIs that were not detected by the IPs. Also, information from the 1,955 medical records was compared with the data entered into the NHSN database. Overall, there was 94% agreement. IPs were taught how to validate their own data to detect these system errors. Systems errors involved problems with data transmission from surgical or lab data systems. Errors in surgery duration time, surgical wound class, the use of an endoscope, and ASA score accounted for 90% of the data input errors.

Central Line Associated Bloodstream Infections (CLABSI): Record for 156 charts and/or IP documentation were reviewed to determine if the reported bloodstream infection met the NHSN criteria for a central line associated bloodstream infection. 155 out of 156 (99.4%) met the NHSN definition. The records were also reviewed to determine if the correct NHSN criteria were used.

The correct criteria were applied 92% of the time. Medical records of patients with positive blood cultures were also reviewed to determine whether a CLABSI occurred. No additional CLABSIs were detected.

Hospitals: Burden of Reporting

NHSN Participation:

To participate in NHSN, hospitals had to take the following time consuming steps:

1. Enroll in NHSN.
 - Sign an agreement with the CDC.
 - Designate a system administrator.
2. Obtain a digital certificate for each person with access to NHSN
3. Install the digital certificate on the computer
4. Confer rights to DHEC to access the hospital's data.
5. Define the hospital locations using CDC criteria
6. Complete a facility survey regarding resources, beds, services provided, etc.
7. Submit a monthly surveillance plan
8. Begin to enter data.

The main challenge reported by the IP is how to balance the burden of NHSN data gathering and data entry and continue to perform infection prevention activities. Reporting requirements are reducing their time for prevention efforts.

NHSN Data collection burden

- If manually entered, very time and labor intensive
- If uploaded from Hospital Information System data is subject to system errors
- Complex instructions and definitions require professionals experienced in infection control
- Definitions not understood by all personnel (e.g. OR) collecting data
- Clinical SSI and CLABSI criteria and NHSN SSI and CLABSI surveillance criteria may be different

Diversion of scarce resources away from Infection Prevention activities

- Hand hygiene monitoring
- Employee Infection Prevention and Control education
- Central line insertion and maintenance monitoring
- Other strategies to reduce HAIs
- Unit rounds to monitor compliance and provide consultation to frontline staff
- Ensuring that isolation policies are followed
- Surveillance for infections other than those that are publicly reportable

Recommendations for 2009 Validation Plan

If funds permit, continue to perform on site Validation Visits, as specified by the legislature to ensure accuracy and completeness.

- Review readmission charts after surgery to search for missed SSIs. Use the information from the original surgery record to validate the NHSN data.
- Concentrate on facilities with new IPs, and perform on site validation visit to confirm data in NHSN, and provide one to one trainings on how to use the NHSN data analysis tools for internal validation.
- Provide written reports with the findings, recommendations/suggestions for improvement or corrective action, if any, to the facilities, and follow up visits, if necessary.

If DHEC is not able to perform on site validation for all hospitals, then the Validation Plan will be limited to monitoring the following:

- Monitor reporting Plan on monthly basis and notify facility if any errors found
- Perform Procedure and Event Line Listings monthly and notify facility if any obvious or likely errors found:
- Monitor all hospitals for the completeness and accuracy of data entered, discuss findings and ensure corrective action is taken
- Target site visits where problems are identified in the NHSN system analysis or if complaints are received.
- Not all reporting problems can be detected by looking in the computer.

Impact of inability to perform on site validation, DHEC will not be able to:

- Validate the accuracy of the total numbers of procedures performed
- Search for unreported SSIs or CLABSI
- Determine the extent of the SSIs
- Validate when and how the SSI was found
- Provide on site NHSN internal validation education
- All of these could affect the accuracy of the public report.

Recommendations for changes in data collection and reporting:

For validation purposes combine Deep and Organ Space SSIs.

- Documentation may not be present in chart to make distinction
- Patient more likely to be readmitted to original hospital or admitted to a different hospital for treatment
- Public report would not be affected.

Eliminate Superficial SSIs found through post discharge surveillance unless patient was admitted to another hospital for treatment of the SSI.

- Because of the shorter stays in the hospital after surgery, a surgical site infection (SSI) may not become evident until some period of time after the patient leaves the hospital.

- The SSI may be superficial and be treated in the physician's office or clinic, or it may be serious and require a readmission to the same hospital where the surgery was done or admission to a different hospital.
- The majority of hospitals do not have access to the surgeon's office records. However, a hospital may be able to find additional SSIs if the IP has access to the physician's office records. In this instance, that hospital's SSI rate on the Public Report may appear higher than another hospital that is not able to follow the patient after discharge.
- This would not penalize the hospitals that are able to conduct extensive post discharge surveillance
- Public report would be more meaningful
- Request that CDC add custom field for South Carolina in NHSN to capture all patients admitted with an SSI to a different hospital than where the surgery was performed.
- Readmissions to a different facility or treated in a physician's office entered into NHSN the same way. Cannot distinguish between treatment in a physician's office and a readmission to another facility.

Consider rotating public reporting requirements for the procedures

- **If procedures continue to be added, eventually IPs will only be able to collect and enter data into NHSN. Infection prevention activities that are already negatively affected will be reduced even more.**

Appendix A

Hospital Infections Disclosure ACT (HIDA)

Members of Advisory Committee

1-30-09

Groups	Members
Hospitals	Deb Brumbaugh – Williamsburg Regional Hospital Dr. Rick Foster – SCHA Columbia Dr. John Sanders – Greenville Hosp. Systems Angela Williford – Conway Medical Center
Consumers	Teresa Arnold – AARP of S.C. Helen Haskell - Mothers Against Med. Error Dianne Parker – Aiken John Ruoff – South Carolina Fair Share
Businesses	Valerie Aiken – CarePro Home Health Bruce Barragan – GMK Associates Delores Logan – AllCaregivers, Inc. Dr. Nelson Gunter –PHT
Purchasers of Health Care Services	Julie Royer – ORS Dr. J.B. Sobel - BC/BS Columbia Regina Young – DHHS Lynn Martinez Page - Carolina Center for Medical Excellence
Physicians	Dr. Helmut Albrecht – USC School of Medicine Dr. Joe John – VA Med - Charleston Dr. Cassandra Salgado – MUSC Dr. Kevin Shea – Carolinas Hospital System and Pres of SC Infectious Disease Society
Infection Control	Sonya Ehrhardt – Regional Medical Center of Orangeburg & Calhoun Counties Paula Guild – Kershaw Med Ctr Beth Rhoton – MUSC Connie Steed – Greenville HS

Past Members

Pete Bailey – Purchasers of Health Care Services
 Dr. Mary Jo Cagle – Hospitals
 Dr. Lydia Chang – Physicians
 Leigh Faircloth - Businesses
 Bobby Horton - Businesses
 Cindy Moon – Infection Control
 Phil Morris - Consumers
 Phyllis Perkins - Businesses
 Karl Pfaehler - Hospitals
 Zenovia Vaughn – Purchasers of Health Care Services
 Dr. John Weems – Physicians

Appendix B

Methicillin Resistant *Staphylococcus Aureus* (MRSA) Bloodstream Infections Data Methodology & Preliminary Report

In 2008, the South Carolina Department of Health and Environmental Control (DHEC) made Methicillin Resistant *Staphylococcus Aureus* Bloodstream Infections (MRSA BSI) a laboratory reportable condition. For the Hospital Infections Disclosure Act, a MRSA BSI is defined as a hospital acquired infection when a blood culture collected more than 72 hours after admission becomes positive for MRSA.

DHEC collects MRSA BSI data in three ways: (i) Electronic Laboratory Reporting (ELRs), (ii) disease report cards mailed to DHEC, (iii) or reports entered directly through Carolinas Health Electronic Surveillance System (CHESS). ELRs import directly into CHESS, and results submitted by disease report cards are manually entered into CHESS.

Once the data is in CHESS, a query is run that looks for all MRSAs that have blood listed as the specimen source. Blood specimen source options for MRSA are whole blood arterial or venous, and very rarely cord blood. Many times, there will be several labs for one person, but that does not translate into a person having multiple infections. If there are fourteen (14) or more days between the first blood draw and the subsequent blood draw, then the latest blood draws are counted as a new infection (event). For example, if a person has their first lab drawn on January 1st and another January 6th and a third one on January 9th, those are all considered the same event and not counted as multiple events. However if a person has their first lab on January 1st and another January 6th and a third on January 27th, the person would be listed as having two events.

After all of the MRSA BSIs have been pulled from CHESS, DHEC gives the file to the Office of Research and Statistics (ORS), where data from DHEC is run through the ORS unique identification system to obtain a unique identifier for linkage to health databases. Unique numbers replace personal identifiers and enables staff to “link across” multiple providers and settings while protecting confidentiality. The data linkage project was approved by the South Carolina Data Oversight Council. The ORS health databases include hospital uniform billing data for inpatient admissions, emergency department visits and outpatient surgeries. The ORS searches health data for encounters one year before and after the event date.

Once the data has been matched, ORS determines whether or not the MRSA BSI is a possible hospital acquired infection (HAI) or a community acquired infection (CA – MRSA). For January 2008 – October 2008 data, the following statistics were derived from the data:

- 557 infections in the DHEC file collected from 531 individuals.
- 357 were collected during an inpatient admission or emergency department visit.
- 278/357 (77.9%) were categorized as CA – MRSA infections.

- 79/357 (22.1%) were categorized as possible HAI - MRSA.
- At this time, data are preliminary and the match for the year is incomplete, so individual hospital data cannot be given at this time.

Appendix C

2009 HAI Comparison Summary Report

2009 HAI Surgical Site Infections Tables

2009 HAI Central Line Associated Bloodstream Infections Tables

Appendix C
2009 Summary Data for HAI Comparison Report
Standardized Infection Ratio (SIR) for all Hospitals Reporting

SIR Interpretation:

Statistically Lower than the Standard Population

Statistically Not Different from the Standard Population

Statistically Higher than the Standard Population

* Small numbers of procedures of five or fewer are not reported to protect confidentiality. These hospitals are not included in the percentages, but are included in the total number of hospitals performing those procedures.

Reports will be final after the follow-up periods for case finding: 30 days or one year (if implants were used).

Surgical Procedures	# Hospitals performing procedure	Total # Procedures	Total # Infections	% Lower SIR	% Not Different SIR	% Higher SIR	Comments*
Coronary Artery Bypass Graft (Chest and Donor Incision)	16	5669	98	56%	44%	0%	N/A
Coronary Artery Bypass Graft (Chest Incision)	11	286	1	0%	100%	0%	* Two hospitals had too few procedures to include in statistical percentage
Hysterectomy (Abdominal)	51	8398	161	2%	90%	8%	Two hospitals had too few procedures to include in statistical percentage
Hysterectomy (Vaginal)	47	6542	47	0%	98%	2%	Two hospitals had too few procedures to include in statistical percentage
Cholecystectomy (Gallbladder)	59	7282	47	0%	98%	2%	Four hospitals had too few procedures to include in statistical percentage
Hip Prosthesis -- Replacement	53	5281	74	0%	98%	2%	Three hospitals had too few procedures to include in

Surgical Procedures	# Hospitals performing procedure	Total # Procedures	Total # Infections	% Lower SIR	% Not Different SIR	% Higher SIR	Comments*
							statistical percentage
Knee Prosthesis -- Replacement	54	8287	71	0%	94%	6%	Six hospitals had too few procedures to include in statistical percentage

Central Line Locations	# Hospitals monitoring Locations	Total # Central Line Days	Total # Infections	% Lower SIR	% Not Different SIR	% Higher SIR	Comments
Medical-Surgical Critical Care Units	42	67621	159	5%	85%	10%	Two hospitals had too few central line days to include in statistical percentage
Medical Critical Care Unit	11	20583	62	0%	91%	9%	N/A
Pediatric Critical Care Unit	5	4037	19	0%	80%	20%	N/A
Surgical Critical Care Unit	5	8102	16	20%	80%	0%	N/A
Medical Inpatient Ward	6	4877	17	0%	83%	17%	N/A
Medical/ Surgical Inpatient Ward	29	12989	19	0%	96%	4%	Four hospitals had too few central line days to include in statistical percentage
Surgical Inpatient Ward	3	1163	3	0%	100%	0%	N/A
Step-Down Unit	5	1356	1	0%	100%	0%	One hospital had too few central line days to include in statistical percentage

From Executive Summary Discussion:

2009 HAI Comparison:

In the **2009 Summary Data for the HAI Comparison Report**, the majority of South Carolina hospitals are statistically “not different” from the standard population for most surgical procedures and hospital central line locations. The summary data are summarized here and presented in the Tables in **Appendix C**.

Surgical Procedures: For the Coronary artery bypass graft (chest and donor incision), fifty-six (56%) percent of SC hospitals had lower (better) SIRs, forty-four (44%) percent were not different than the standard, and none were higher than the standard. For one other procedure (abdominal hysterectomy), 2% of the hospitals had lower SIRs. For five of the seven surgical procedures, 2% up to 8% of hospitals had a higher SIR than the standard. These higher SIRs were for gallbladder surgery, hysterectomy (abdominal and vaginal), and hip and knee replacement. Coronary artery bypass graft (chest and donor incision and chest only) were the two surgical procedures with no hospitals with an SIR above the standard.

Central Line Associated Bloodstream Infections: As expected, for the eight types of hospital locations reporting central line associated bloodstream infections, SIRs are generally higher in the critical care units than in the inpatient wards. Compared to the standard, the majority of locations are statistically **not** different. For two locations, Medical Surgical Critical Care (5%) and Surgical Critical Care (20%) of hospitals reported SIRs lower than standard. Five of the eight locations had SIRs higher than the standard for the following percentage of hospitals: Medical / Surgical Inpatient Wards (4%), Medical Critical Care (9%), Medical-Surgical Critical Care (10%), Medical Inpatient Ward (17%), and Pediatric Critical Care (20%).

Appendix C
2009 HAI Surgical Site Infections Tables
2009 HAI Central Line Associated Bloodstream Infections Tables

Table 1: Coronary Artery Bypass Graft (both chest and donor site incisions) Surgical Site Infection (SSI)
Standardized Infection Ratio (SIR) Tables
July 1, 2007 – November 30, 2008

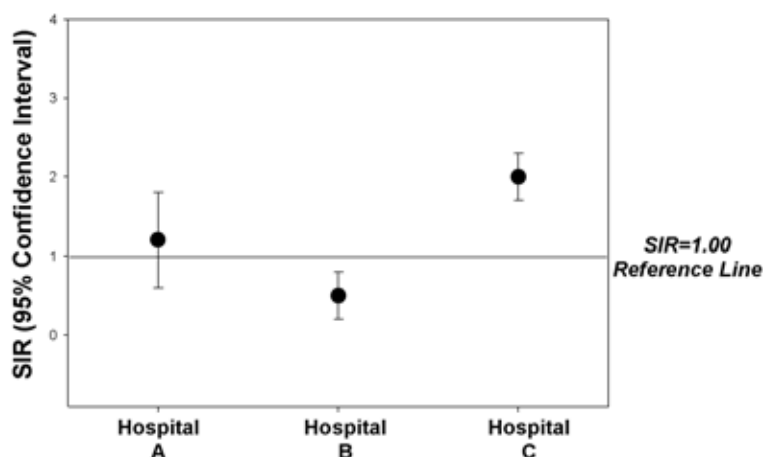
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the surgical site infection (SSI) experience among a group of reported procedures to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of $SIR = 1.0$, we conclude that the hospital's infection rate is similar (not significantly different) from "expected" (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of $SIR = 1.0$, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of $SIR = 1.0$, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Procedure: Coronary Artery Bypass Graft (Chest and Donor Incision)

Hospital	Observed No. Of SSI	No. of Procedures	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)				
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]	
					Lower	Upper		
Aiken Regional Medical Center	6	90	3.6	1.68	0.62	-	3.65	Not Different
AnMed Health Medical Center	4	267	8.6	0.47	0.13	-	1.19	Not Different
Carolinas Hospital System	9	221	7.0	1.29	0.59	-	2.45	Not Different
Grand Strand Regional Medical Center	8	553	18.7	0.43	0.18	-	0.84	Lower
Greenville Memorial Hospital	17	725	27.4	0.62	0.36	-	0.99	Lower
Hilton Head Regional Medical Center	2	61	2.3	0.86	0.10	-	3.12	Not Different

Hospital	Observed No. Of SSI	No. of Procedures	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			Statistical Interpretation [‡]
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		
					Lower	Upper	
McLeod Medical Center – Pee Dee	3	270	9.1	0.33	0.07 - 0.96	Lower	
MUSC Medical Center	12	312	10.8	1.11	0.57 - 1.94	Not Different	
Palmetto Health Richland	4	426	15.6	0.26	0.07 - 0.66	Lower	
Piedmont Medical Center	1	178	6.5	0.15	0.00 - 0.86	Lower	
Providence Hospital	6	948	28.5	0.21	0.08 - 0.46	Lower	
Roper Hospital Inc.	13	452	16.5	0.79	0.42 - 1.35	Not Different	
Self Regional Healthcare	2	149	4.8	0.42	0.05 - 1.51	Not Different	
Spartanbu rg Regional Medical Center	6	425	14.5	0.42	0.15 - 0.90	Lower	
St. Francis - Downtown	3	361	11.4	0.26	0.05 - 0.77	Lower	
Trident Medical Center	2	231	9.1	0.22	0.03 - 0.79	Lower	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

Table 2: Coronary Artery Bypass Graft (Chest Incision) Surgical Site Infection (SSI) Standardized Infection Ratio (SIR) Tables
July 1, 2007 – November 30, 2008

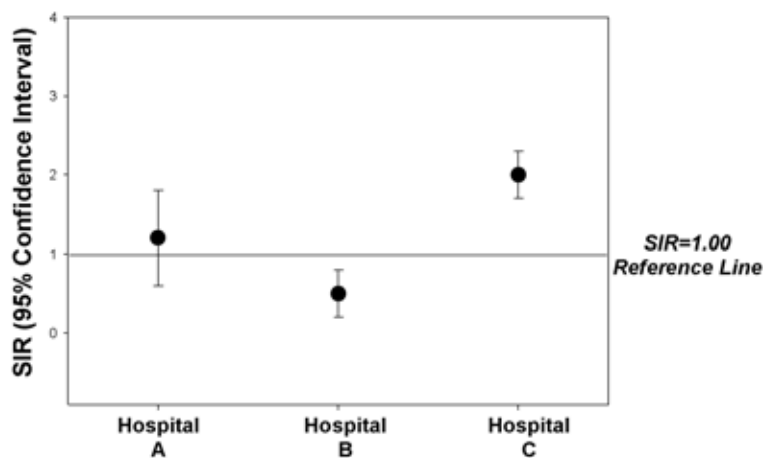
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the surgical site infection (SSI) experience among a group of reported procedures to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital’s infection rate is similar (not significantly different) from “expected” (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)
Table 2

Procedure: Coronary Artery Bypass Graft (Chest Incision)
Statewide

Reporting Period: July 1, 2007 – November 30, 2008

Hospital	Observed No. Of SSI	No. of Procedures*	Statistically “Expected” No. of SSI [‡]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		SC Hospital SIR Interpretation [†]
					Lower	Upper	
AnMed Health Medical Center	*	1	*	*	*	-	*
Carolinas Hospital System	0	11	0.2	0.00	0.00	-	20.57 Not Different
McLeod Medical Center - Florence	0	38	0.7	0.00	0.00	-	4.96 Not Different
MUSC Medical Center	0	31	0.6	0.00	0.00	-	6.36 Not Different
Palmetto Health Richland	0	32	0.7	0.00	0.00	-	5.20 Not Different
Piedmont Medical Center	0	19	0.4	0.00	0.00	-	9.59 Not Different
Providence Hospital	0	36	0.6	0.00	0.00	-	6.03 Not Different
Roper Hospital Inc.	1	16	0.3	3.09	0.08	-	17.23 Not Different

Hospital	Observed No. Of SSI	No. of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = Observed “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [‡]
					Lower	Upper	
Self Regional Healthcare	0	6	0.1	0.00	0.00 - 30.04	Not Different	
Spartanbu rg Regional Medical Center	0	93	2.0	0.00	0.00 - 1.82	Not Different	
Trident Medical Center	*	3	*	*	* *	*	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

**Table 3: Hip Prosthesis (Replacement) Surgical Site Infection (SSI)
Standardized Infection Ratio (SIR) Tables
January 1, 2008 – November 30, 2008**

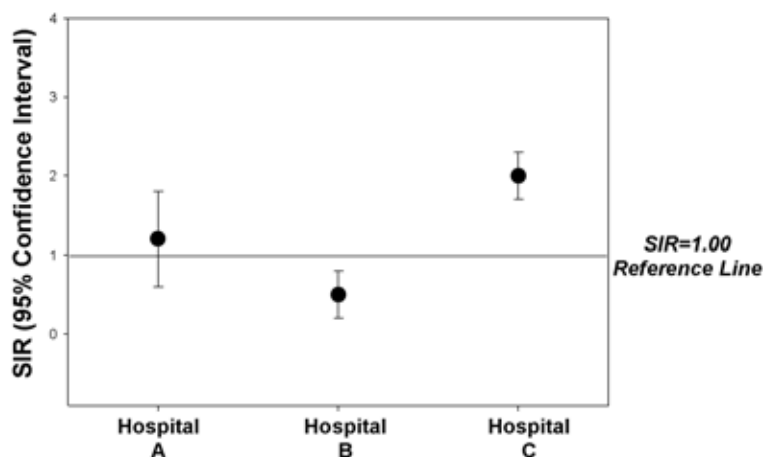
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the surgical site infection (SSI) experience among a group of reported procedures to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital’s infection rate is similar (not significantly different) from “expected” (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)	
Table 3	
Procedure: Hip Prosthesis (Replacement)	

<p>Upstate (Abbeville, Anderson, Cherokee, Edgefield, Greenville, Greenwood, McCormick, Oconee, Pickens, Saluda, Spartanburg, Union)</p>

<p>Reporting Period: January 1, 2008 – November 30, 2008</p>

Hospital	Observed No. Of SSI	No. of Procedures*	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (“Observed = Expected”)				
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]	
					Lower	Upper		
Abbeville Area Medical Center	1	15	0.2	5.35	0.13	-	29.81	Not Different
AnMed Health Medical Center	0	137	2.0	0.00	0.00	-	1.81	Not Different
Cannon Memorial Hospital	0	10	0.2	0.00	0.00	-	21.50	Not Different
Greenville Memorial Hospital	5	129	2.4	2.07	0.67	-	4.82	Not Different
Greer Memorial Hospital	1	87	1.5	0.65	0.02	-	3.64	Not Different
Hillcrest Memorial Hospital	0	62	0.8	0.00	0.00	-	4.39	Not Different
Laurens County Healthcare System	5	57	0.9	5.87	1.91	-	13.71	Higher

Hospital	Observed No. Of SSI	No. of Procedures *	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (“Observed = Expected”)			
				Hospital SIR = Observed “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Mary Black Memorial Hospital	2	91	1.5	1.31	0.16	- 4.72	Not Different
Oconee Memorial Hospital	2	90	1.2	1.69	0.20	- 6.10	Not Different
Palmetto Baptist Medical Center - Easley	1	55	0.9	1.08	0.03	- 6.01	Not Different
Patewood Memorial Hospital	3	207	2.6	1.16	0.24	- 3.39	Not Different
Self Regional Healthcare	0	201	3.2	0.00	0.00	- 1.15	Not Different
Spartanbu rg Regional Medical Center	1	280	4.5	0.22	0.01	- 1.25	Not Different
St. Francis - Downtown	4	113	1.7	2.40	0.65	- 6.15	Not Different
St. Francis - Eastside	5	344	3.9	1.28	0.42	- 2.99	Not Different
Upstate Carolina Medical Center	0	7	0.1	0.00	0.00	- 41.13	Not Different
Wallace Thomson Hospital	0	9	0.2	0.00	0.00	- 23.83	Not Different

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically similar (not different) than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

- ‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.
- * Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)

Table 3

Procedure: Hip Prosthesis (Replacement)

Midlands (Aiken, Allendale, Bamberg, Barnwell, Calhoun, Chester, Chesterfield, Darlington, Dillon, Fairfield, Florence, Kershaw, Lancaster, Lee, Lexington, Marion, Marlboro, Newberry, Orangeburg, Richland, Sumter, York)

Reporting Period: January 1, 2008 – November 30, 2008

Hospital	Observed No. Of SSI	No. of Procedures *	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		SC Hospital SIR Interpretation [†]
					Lower	Upper	
Aiken Regional Medical Center	1	95	1.4	0.73	0.02	- 4.08	Not Different
Carolina Pines Regional Medical Center	1	25	0.4	2.45	0.06	- 13.64	Not Different
Carolinas Hospital System	0	101	1.6	0.00	0.00	- 2.31	Not Different
Chester Regional Medical Center	0	6	0.1	0.00	0.00	- 36.60	Not Different
Chesterfiel d General Hospital	*	3	*	*	*	- *	*
Clarendon Memorial Hospital	0	8	0.1	0.00	0.00	- 25.41	Not Different

Hospital	Observed No. Of SSI	No. of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [‡]
					Lower	Upper	
Regional Medical Center Of Orangebur g/Calhoun Counties	0	60	0.9	0.00	0.00 - 4.03	Not Different	
Springs Memorial Hospital	2	35	0.5	3.69	0.45 - 13.34	Not Different	
Tuomey	2	51	0.8	2.35	0.28 - 8.50	Not Different	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically similar (not different) than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)
Table 3

Procedure: Hip Prosthesis (Replacement)

Coastal (Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper, Williamsburg)

Reporting Period: January 1, 2008 – November 30, 2008

Hospital	Observed No. Of SSI	No. of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Beaufort Memorial Hospital	2	120	1.7	1.19	0.14	- 4.30	Not Different
Bon Secours - St. Francis Xavier Hospital	0	18	0.3	0.00	0.00	- 13.00	Not Different
Coastal Carolina Medical Center	0	10	0.2	0.00	0.00	- 15.03	Not Different
Colleton Medical Center	1	23	0.3	3.02	0.08	- 16.85	Not Different
Conway Medical Center	0	42	0.6	0.00	0.00	- 5.70	Not Different
East Cooper Regional Medical Center	0	27	0.4	0.00	0.00	- 9.03	Not Different
Georgetow n Memorial Hospital	0	44	0.7	0.00	0.00	- 5.07	Not Different

Hospital	Observed No. Of SSI	No. of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			Statistical Interpretation [‡]
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		
					Lower	Upper	
Grand Strand Regional Medical Center	1	213	3.4	0.29	0.01 - 1.62	Not Different	
Hampton Regional Medical Center	*	1	*	*	* - *	Not Different	
Hilton Head Regional Medical Center	0	54	0.7	0.00	0.00 - 5.13	Not Different	
Loris Healthcare System	0	15	0.3	0.00	0.00 - 12.38	Not Different	
MUSC Medical Center	5	234	3.5	1.41	0.46 - 3.29	Not Different	
Roper Hospital Inc.	10	396	5.1	1.96	0.94 - 3.60	Not Different	
Summervil le Medical Center	2	62	1.2	1.62	0.20 - 5.86	Not Different	
Trident Medical Center	2	146	2.6	0.78	0.09 - 2.82	Not Different	
Waccama w Communit y Hospital	0	93	1.7	0.00	0.00 - 2.19	Not Different	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically similar (not different) than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

- * Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

**Table 4: Knee Prosthesis (Replacement) Surgical Site Infection (SSI)
Standardized Infection Ratio (SIR) Tables
January 1, 2008 – November 30, 2008**

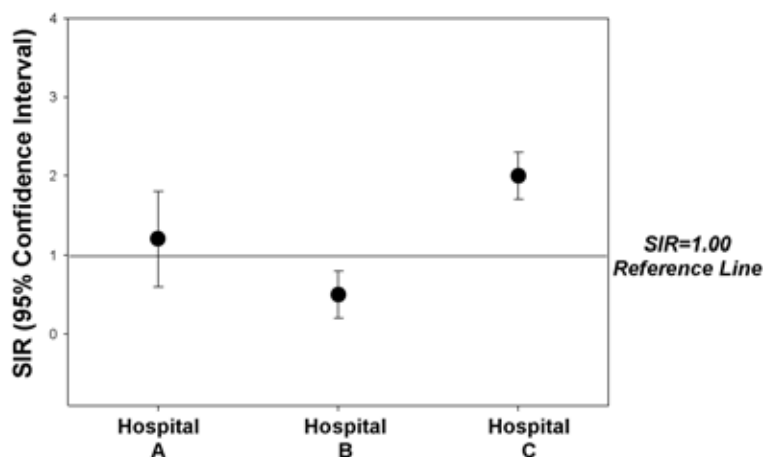
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the surgical site infection (SSI) experience among a group of reported procedures to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital’s infection rate is similar (not significantly different) from “expected” (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)	
Table 4	
Procedure: Knee Prosthesis (Replacement)	

Upstate (Abbeville, Laurens, Oconee, Anderson, Greenwood, Anderson, Spartanburg, Union, Pickens, Greenville, Spartanburg, Cherokee)

<p>Reporting Period: January 1, 2008 – November 30, 2008</p>

Hospital	Observed No. Of SSI	No. of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Abbeville Area Medical Center	0	18	0.1	0.00	0.00 - 27.21	Not Different	
AnMed Health Medical Center	0	178	1.8	0.00	0.00 - 2.03	Not Different	
Cannon Memorial Hospital	0	24	0.3	0.00	0.00 - 11.74	Not Different	
Greenville Memorial Hospital	3	41	0.5	5.52	1.14 - 16.15	Higher	
Greer Memorial Hospital	0	68	0.8	0.00	0.00 - 4.42	Not Different	
Hillcrest Memorial Hospital	0	70	0.8	0.00	0.00 - 4.91	Not Different	
Laurens County Healthcare System	1	92	1.1	0.94	0.02 - 5.26	Not Different	

Hospital	Observed No. Of SSI	No. of Procedures *	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			Statistical Interpretation [†]
				Hospital SIR = Observed “Expected”	95% Confidence Interval (CI)		
					Lower	Upper	
Mary Black Memorial Hospital	1	193	1.9	0.51	0.01 - 2.86	Not Different	
Oconee Memorial Hospital	0	179	1.6	0.00	0.00 - 2.32	Not Different	
Palmetto Baptist Medical Center - Easley	1	69	0.9	1.08	0.03 - 6.00	Not Different	
Patewood Memorial Hospital	9	394	3.6	2.47	1.13 - 4.68	Higher	
Self Regional Healthcare	1	300	2.1	0.48	0.01 - 2.69	Not Different	
Spartanbu rg Regional Medical Center	4	534	5.7	0.71	0.19 - 1.81	Not Different	
St. Francis - Downtown	1	77	0.7	1.34	0.03 - 7.46	Not Different	
St. Francis - Eastside	7	851	7.6	0.92	0.37 - 1.90	Not Different	
Upstate Carolina Medical Center	1	33	0.3	3.29	0.08 - 18.35	Not Different	
Wallace Thomson Hospital	0	9	0.1	0.00	0.00 - 34.80	Not Different	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically similar (not different) than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

- ‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.
- * Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)
Table 4

Procedure: Knee Prosthesis (Replacement)

Midlands (Newberry, Lexington, Richland, Fairfield, Chester, York, Lancaster, Clarendon, Sumter, Lee, Kershaw, Chesterfield, Darlington, Marlboro, Florence, Marion, Dillon, Newberry, Aiken, Barnwell, Allendale, Bamberg, Orangeburg, Calhoun)

Reporting Period: January 1, 2008 – November 30, 2008

Hospital	Observed No. Of SSI	No. Of Procedures*	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Aiken Regional Medical Center	1	86	0.9	1.14	0.03 - 6.34	Not Different	
Carolina Pines Regional Medical Center	0	30	0.3	0.00	0.00 - 11.04	Not Different	
Carolinas Hospital System	2	148	1.5	1.32	0.16 - 4.76	Not Different	
Chester Regional Medical Center	*	4	*	*	* - *	*	
Chesterfiel d General Hospital	*	4	*	*	* - *	*	
Clarendon Memorial Hospital	0	31	0.4	0.00	0.00 - 9.09	Not Different	
Kershaw County Medical Center	0	47	0.6	0.00	0.00 - 6.59	Not Different	

Hospital	Observed No. Of SSI	No. Of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Regional Medical Center Of Orangebur g/Calhoun Counties	4	77	0.9	4.61	1.26 - 11.81	Higher	
Springs Memorial Hospital	0	34	0.4	0.00	0.00 - 10.41	Not Different	
Tuomey	0	154	1.7	0.00	0.00 - 2.20	Not Different	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically similar (not different) than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)
Table 4

Procedure: Knee Prosthesis (Replacement)

Region: Coastal (Georgetown, Horry, Williamsburg, Charleston, Dorchester, Berkeley, Jasper, Hampton, Colleton, Beaufort)

Reporting Period: January 1, 2008 – November 30, 2008

Hospital	Observed No. Of SSI	No. Of Procedures*	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Beaufort Memorial Hospital	3	317	3.1	0.96	0.20 -	2.82	Not Different
Bon Secours - St. Francis Xavier Hospital	*	3	0.0	*	* -	*	*
Coastal Carolina Medical Center	*	1	0.0	*	* -	*	*
Colleton Medical Center	0	38	0.4	0.00	0.00 -	10.31	Not Different
Conway Medical Center	0	106	1.1	0.00	0.00 -	3.23	Not Different
East Cooper Regional Medical Center	0	18	0.2	0.00	0.00 -	18.63	Not Different
Georgetow n Memorial Hospital	1	148	1.6	0.61	0.02 -	3.41	Not Different

Hospital	Observed No. Of SSI	No. Of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [‡]
					Lower	Upper	
Grand Strand Regional Medical Center	3	279	3.0	1.01	0.21 -	2.96	Not Different
Hampton Regional Medical Center	0	8	0.1	0.00	0.00 -	48.29	Not Different
Hilton Head Regional Medical Center	0	45	0.5	0.00	0.00 -	8.15	Not Different
Loris Healthcare System	0	34	0.5	0.00	0.00 -	7.76	Not Different
MUSC Medical Center	3	273	2.7	1.10	0.23 -	3.22	Not Different
Roper Hospital Inc.	6	709	6.3	0.95	0.35 -	2.06	Not Different
Summervil le Medical Center	1	132	1.4	0.69	0.02 -	3.85	Not Different
Trident Medical Center	0	207	2.2	0.00	0.00 -	1.70	Not Different
Waccama w Communit y Hospital	0	172	2.2	0.00	0.00 -	1.66	Not Different

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically similar (not different) than the standard population
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- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

- * Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

**Table 5: Hysterectomy (Abdominal) Surgical Site Infection (SSI)
Standardized Infection Ratio (SIR) Tables
July 1, 2007 – November 30, 2008**

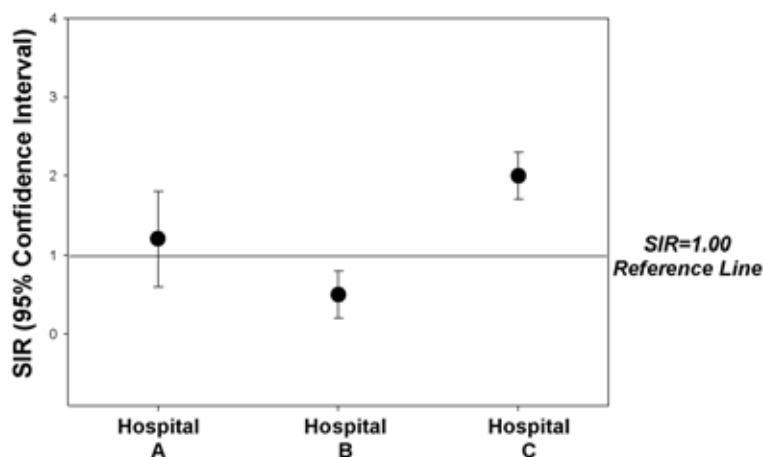
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the surgical site infection (SSI) experience among a group of reported procedures to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital’s infection rate is similar (not significantly different) from “expected” (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)
Table 5

Procedure: Hysterectomy (Abdominal)

Upstate (Abbeville, Anderson, Cherokee, Edgefield, Greenville, Greenwood, McCormick, Oconee, Pickens, Saluda, Spartanburg, Union)

Reporting Period: July 1, 2007 – November 30, 2008

Hospital	Observed No. Of SSI	No. of Procedures*	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Abbeville Area Medical Center	2	31	0.4	4.78	0.58	- 17.27	Not Different
AnMed Health Medical Center	10	264	4.0	2.51	1.20	- 4.62	Higher
AnMed Health Womens And Children	0	98	1.4	0.00	0.00	- 2.67	Not Different
Greenville Memorial Hospital	13	748	12.7	1.02	0.55	- 1.75	Not Different
Greer Memorial Hospital	0	35	0.6	0.00	0.00	- 6.66	Not Different
Laurens County Healthcare System	2	30	0.7	3.06	0.37	- 11.06	Not Different
Mary Black Memorial Hospital	4	215	3.0	1.32	0.36	- 3.39	Not Different

Hospital	Observed No. Of SSI	No. of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			Statistical Interpretation [‡]
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		
					Lower	Upper	
Oconee Memorial Hospital	2	62	0.9	2.24	0.27 - 8.08	Not Different	
Palmetto Baptist Medical Center - Easley	1	81	1.2	0.85	0.02 - 4.73	Not Different	
Patewood Memorial Hospital	0	24	0.3	0.00	0.00 - 11.07	Not Different	
Self Regional Healthcare	5	399	5.1	0.99	0.32 - 2.30	Not Different	
Spartanbu rg Regional Medical Center	1	311	5.7	0.18	0.00 - 0.98	Lower	
St. Francis - Eastside	9	551	7.6	1.19	0.54 - 2.26	Not Different	
Upstate Carolina Medical Center	1	20	0.4	2.73	0.07 - 15.23	Not Different	
Wallace Thomson Hospital	0	6	0.1	0.00	0.00 - 37.00	Not Different	

† SC Hospital SIR Statistical Interpretation

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* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)
Table 5

Procedure: Hysterectomy (Abdominal)

Midlands (Aiken, Allendale, Bamberg, Barnwell, Calhoun, Chester, Chesterfield, Darlington, Dillon, Fairfield, Florence, Kershaw, Lancaster, Lee, Lexington, Marion, Marlboro, Newberry, Orangeburg, Richland, Sumter, York)

Reporting Period: July 1, 2007 – November 30, 2008

Hospital	Observed No. Of SSI	No. of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Aiken Regional Medical Center	6	349	4.7	1.27	0.47 - 2.76	Not Different	
Carolina Pines Regional Medical Center	1	46	0.7	1.40	0.03 - 7.79	Not Different	
Carolinas Hospital System	0	126	1.7	0.00	0.00 - 2.14	Not Different	
Chester Regional Medical Center	*	2	*	*	* - *	*	
Chesterfiel d General Hospital	1	11	0.3	3.67	0.09 - 20.46	Not Different	
Clarendon Memorial Hospital	0	120	1.6	0.00	0.00 - 2.32	Not Different	
Kershaw County Medical Center	1	61	1.1	0.92	0.02 - 5.14	Not Different	

Hospital	Observed No. Of SSI	No. of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [‡]
					Lower	Upper	
Lexington Medical Center	6	420	7.6	0.79	0.29 - 1.72	Not Different	
Marion County Medical Center	0	59	1.0	0.00	0.00 - 3.78	Not Different	
Marlboro Park Hospital	3	17	0.3	9.03	1.86 - 26.38	Higher	
McLeod Medical Center - Dillon	2	62	1.1	1.88	0.23 - 6.80	Not Different	
McLeod Medical Center - Pee Dee	2	340	6.5	0.31	0.04 - 1.11	Not Different	
Newberry County Memorial Hospital	0	9	0.1	0.00	0.00 - 36.60	Not Different	
Palmetto Health Baptist	3	266	4.4	0.69	0.14 - 2.01	Not Different	
Palmetto Health Richland	15	532	10.9	1.37	0.77 - 2.26	Not Different	
Piedmont Medical Center	2	210	3.2	0.62	0.08 - 2.25	Not Different	
Providence Hospital Downtown	*	4	*	*	* - *	*	
Providence Hospital Northeast	1	164	2.2	0.46	0.01 - 2.56	Not Different	

Hospital	Observed No. Of SSI	No. of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			Statistical Interpretation [‡]
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		
					Lower	Upper	
Regional Medical Center Of Orangebur g/Calhoun Counties	1	138	2.1	0.48	0.01 - 2.68	Not Different	
Springs Memorial Hospital	4	112	1.9	2.11	0.58 - 5.41	Not Different	
Tuomey	1	229	3.2	0.31	0.01 - 1.72	Not Different	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)
Table 5

Procedure: Hysterectomy (Abdominal)

Coastal (Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper, Williamsburg)

Reporting Period: July 1, 2007 – November 30, 2008

Hospital	Observed No. Of SSI	No. of Procedures *	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Beaufort Memorial Hospital	4	127	2.3	1.70	0.46	- 4.36	Not Different
Bon Secours - St. Francis Xavier Hospital	10	289	4.5	2.20	1.06	- 4.05	Higher
Coastal Carolina Medical Center	1	12	0.3	2.98	0.07	- 16.63	Not Different
Colleton Medical Center	0	42	0.5	0.00	0.00	- 6.73	Not Different
Conway Medical Center	5	203	2.8	1.77	0.58	- 4.13	Not Different
East Cooper Regional Medical Center	6	186	2.7	2.19	0.80	- 4.77	Not Different
Georgetow n Memorial Hospital	1	46	0.9	1.06	0.03	- 5.91	Not Different

Hospital	Observed No. Of SSI	No. of Procedures *	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			Statistical Interpretation [‡]
				Hospital SIR = Observed “Expected”	95% Confidence Interval (CI)		
					Lower	Upper	
Grand Strand Regional Medical Center	3	127	2.2	1.35	0.28 - 3.95	Not Different	
Hilton Head Regional Medical Center	1	56	0.9	1.10	0.03 - 6.15	Not Different	
Loris Healthcare System	3	47	1.1	2.85	0.59 - 8.34	Not Different	
MUSC Medical Center	13	231	6.1	2.12	1.13 - 3.62	Higher	
Roper Hospital Inc.	8	256	4.8	1.66	0.72 - 3.26	Not Different	
Summervil le Medical Center	2	288	4.3	0.47	0.06 - 1.69	Not Different	
Trident Medical Center	3	291	5.1	0.58	0.12 - 1.71	Not Different	
Waccama w Communit y Hospital	2	45	1.0	2.05	0.25 - 7.39	Not Different	

[†] SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

[‡] Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

**Table 6: Hysterectomy (Vaginal) Surgical Site Infection (SSI)
Standardized Infection Ratio (SIR) Tables
July 1, 2007 – November 30, 2008**

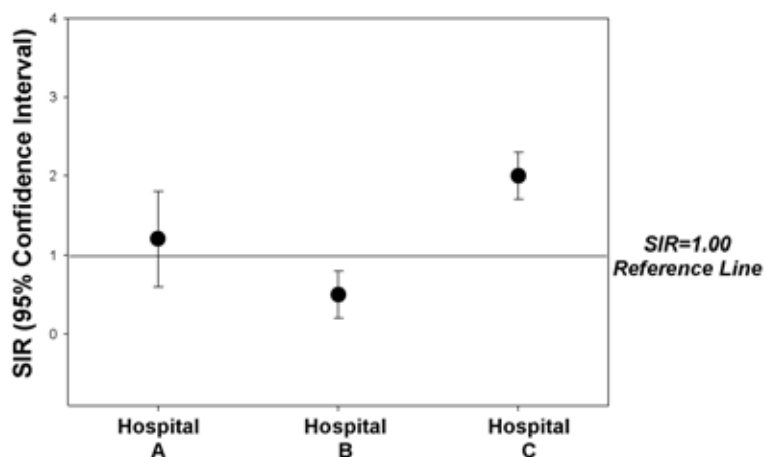
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the surgical site infection (SSI) experience among a group of reported procedures to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital’s infection rate is similar (not significantly different) from “expected” (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)
Table 6

Procedure: Hysterectomy (Vaginal)

Upstate (Abbeville, Anderson, Cherokee, Edgefield, Greenville, Greenwood, McCormick, Oconee, Pickens, Saluda, Spartanburg, Union)

Reporting Period: July 1, 2007 – November 30, 2008

Hospital	Observed No. Of SSI	No. Of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Abbeville Area Medical Center	0	13	0.1	0.00	0.00 - 37.34		Not Different
AnMed Health Medical Center	0	74	0.6	0.00	0.00 - 5.70		Not Different
AnMed Health Womens And Children	0	56	0.5	0.00	0.00 - 8.01		Not Different
Greenville Memorial Hospital	2	475	4.5	0.44	0.05 - 1.61		Not Different
Greer Memorial Hospital	0	45	0.4	0.00	0.00 - 9.53		Not Different
Laurens County Healthcare System	0	84	0.9	0.00	0.00 - 4.11		Not Different
Mary Black Memorial Hospital	1	153	1.3	0.76	0.02 - 4.21		Not Different

Hospital	Observed No. Of SSI	No. Of Procedures *	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)		
				Hospital SIR = $\frac{\text{Observed}}{\text{“Expected”}}$	95% Confidence Interval (CI) Statistical Interpretation [†]	
					Lower	Upper
Oconee Memorial Hospital	0	93	0.8	0.00	0.00 - 4.66	Not Different
Palmetto Baptist Medical Center - Easley	1	86	0.8	1.19	0.03 - 6.61	Not Different
Patewood Memorial Hospital	*	3	*	*	* - *	*
Self Regional Healthcare	1	111	0.9	1.14	0.03 - 6.34	Not Different
Spartanburg Regional Medical Center	1	453	4.6	0.22	0.01 - 1.22	Not Different
St. Francis - Eastside	1	362	3.4	0.29	0.01 - 1.63	Not Different
Upstate Carolina Medical Center	0	15	0.1	0.00	0.00 - 28.60	Not Different
Wallace Thomson Hospital	0	10	0.1	0.00	0.00 - 38.43	Not Different

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)
Table 6

Procedure: Hysterectomy (Vaginal)

Midlands (Aiken, Allendale, Bamberg, Barnwell, Calhoun, Chester, Chesterfield, Darlington, Dillon, Fairfield, Florence, Kershaw, Lancaster, Lee, Lexington, Marion, Marlboro, Newberry, Orangeburg, Richland, Sumter, York)

Reporting Period: July 1, 2007 – November 30, 2008

Hospital	Observed No. Of SSI	No. Of Procedures	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Aiken Regional Medical Center	0	98	0.9	0.00	0.00	- 4.32	Not Different
Carolinas Hospital System	1	130	1.2	0.85	0.02	- 4.75	Not Different
Chester Regional Medical Center	0	19	0.2	0.00	0.00	- 15.74	Not Different
Chesterfield General Hospital	0	7	0.1	0.00	0.00	- 50.40	Not Different
Clarendon Memorial Hospital	0	71	0.6	0.00	0.00	- 6.31	Not Different
Kershaw County Medical Center	0	72	0.7	0.00	0.00	- 5.57	Not Different
Lexington Medical Center	6	419	4.0	1.51	0.55	- 3.29	Not Different

Hospital	Observed No. Of SSI	No. Of Procedures	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Marion County Medical Center	0	26	0.2	0.00	0.00 - 15.53	Not Different	
Marlboro Park Hospital	0	7	0.1	0.00	0.00 - 47.17	Not Different	
McLeod Medical Center - Dillon	2	21	0.2	9.78	1.18 - 35.31	Higher	
McLeod Medical Center - Pee Dee	1	288	2.9	0.34	0.01 - 1.92	Not Different	
Palmetto Health Baptist	4	862	7.6	0.53	0.14 - 1.35	Not Different	
Palmetto Health Richland	6	320	3.1	1.93	0.71 - 4.20	Not Different	
Piedmont Medical Center	0	227	2.0	0.00	0.00 - 1.80	Not Different	
Providence Hospital Northeast	0	96	0.8	0.00	0.00 - 4.47	Not Different	
Regional Medical Center Of Orangebur g/Calhoun Counties	1	87	0.8	1.33	0.03 - 7.42	Not Different	
Springs Memorial Hospital	0	14	0.1	0.00	0.00 - 29.19	Not Different	
Tuomey	1	82	0.7	1.43	0.04 - 7.98	Not Different	

[†] SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

- ‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

Surgical Site Infection (SSI) – Standardized Infection Ratio (SIR)	
Table 6	
Procedure: Hysterectomy (Vaginal)	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
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21	22
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71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

Coastal (Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper, Williamsburg)

<p>Reporting Period: July 1, 2007 – November 30, 2008</p>
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Hospital	Observed No. Of SSI	No. Of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)				
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]	
					Lower	Upper		
Beaufort Memorial Hospital	1	146	1.4	0.73	0.02	-	4.08	Not Different
Bon Secours - St. Francis Xavier Hospital	3	172	1.6	1.85	0.38	-	5.40	Not Different
Coastal Carolina Medical Center	*	5	*	*	*	-	*	*
Conway Medical Center	3	98	0.9	3.43	0.71	-	10.02	Not Different
East Cooper Regional Medical Center	2	116	1.0	1.93	0.23	-	6.97	Not Different
Georgetow n Memorial Hospital	0	44	0.5	0.00	0.00	-	7.62	Not Different

Hospital	Observed No. Of SSI	No. Of Procedures *	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = Observed “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Grand Strand Regional Medical Center	0	167	1.6	0.00	0.00 - 2.37	Not Different	
Hilton Head Regional Medical Center	0	31	0.3	0.00	0.00 - 13.39	Not Different	
Loris Healthcare System	3	120	1.2	2.47	0.51 - 7.20	Not Different	
MUSC Medical Center	1	140	1.4	0.69	0.02 - 3.85	Not Different	
Roper Hospital Inc.	2	122	1.3	1.54	0.19 - 5.57	Not Different	
Summervil le Medical Center	1	217	1.9	0.53	0.01 - 2.97	Not Different	
Trident Medical Center	1	197	1.7	0.58	0.01 - 3.24	Not Different	
Waccama w Communit y Hospital	1	88	0.9	1.05	0.03 - 5.87	Not Different	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

Table 7: Cholecystectomy & cholecystotomy (Gallbladder) Surgical Site Infection (SSI) Standardized Infection Ratio (SIR) Tables
January 1, 2008 – November 30, 2008

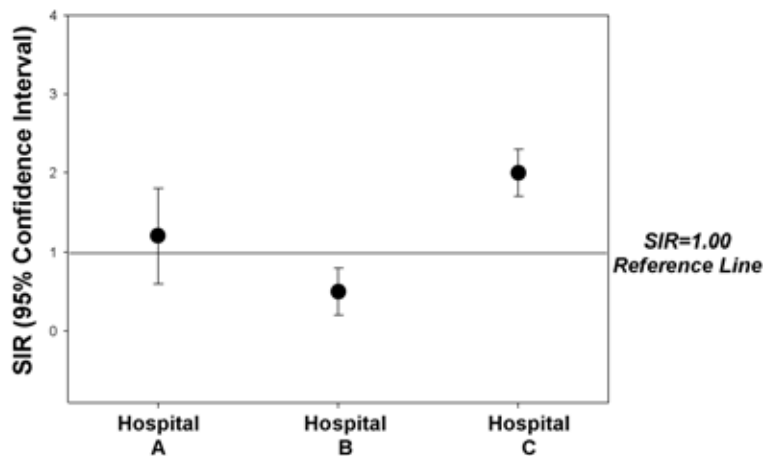
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the surgical site infection (SSI) experience among a group of reported procedures to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital’s infection rate is similar (not significantly different) from “expected” (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Surgical Site Infection (SSI) - Standardized Infection Ratio (SIR)
Table 7

Procedure: Cholecystectomy (Gallbladder)

Upstate (Abbeville, Anderson, Cherokee, Edgefield, Greenville, Greenwood, McCormick, Oconee, Pickens, Saluda, Spartanburg, Union)

Reporting Period: January 1, 2008 – November 30, 2008

Hospital	Observed No. Of SSI	No. Of Procedures*	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Abbeville Area Medical Center	0	20	0.1	0.00	0.00 - 26.73	Not Different	
AnMed Health Medical Center	0	473	3.3	0.00	0.00 - 1.13	Not Different	
AnMed Health Womens And Children	0	47	0.3	0.00	0.00 - 11.38	Not Different	
Cannon Memorial Hospital	0	20	0.1	0.00	0.00 - 26.73	Not Different	
Greenville Memorial Hospital	3	288	2.0	1.51	0.31 - 4.41	Not Different	
Greer Memorial Hospital	0	43	0.3	0.00	0.00 - 12.43	Not Different	
Hillcrest Memorial Hospital	0	27	0.2	0.00	0.00 - 19.80	Not Different	

Hospital	Observed No. Of SSI	No. Of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			Statistical Interpretation [†]
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		
					Lower	Upper	
Laurens County Healthcare System	1	43	0.3	3.37	0.08	- 18.78	Not Different
Mary Black Memorial Hospital	0	122	0.8	0.00	0.00	- 4.38	Not Different
Oconee Memorial Hospital	1	95	0.7	1.53	0.04	- 8.50	Not Different
Palmetto Baptist Medical Center - Easley	0	243	1.7	0.00	0.00	- 2.20	Not Different
Patewood Memorial Hospital	*	4	*	*	*	- *	*
Self Regional Healthcare	2	312	2.2	0.93	0.11	- 3.36	Not Different
Spartanbu rg Regional Medical Center	5	319	2.2	2.27	0.74	- 5.30	Not Different
St. Francis Downtown	0	210	1.4	0.00	0.00	- 2.55	Not Different
St. Francis Eastside	0	21	0.1	0.00	0.00	- 25.46	Not Different
Upstate Carolina Medical Center	0	37	0.3	0.00	0.00	- 14.45	Not Different
Wallace Thomson Hospital	1	23	0.2	6.30	0.16	- 35.11	Not Different

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

Surgical Site Infection (SSI) - Standardized Infection Ratio (SIR)
Table 7

Procedure: Cholecystectomy (Gallbladder)

Midlands (Aiken, Allendale, Bamberg, Barnwell, Calhoun, Chester, Chesterfield, Darlington, Dillon, Fairfield, Florence, Kershaw, Lancaster, Lee, Lexington, Marion, Marlboro, Newberry, Orangeburg, Richland, Sumter, York)

Reporting Period: January 1, 2008 – November 30, 2008

Hospital	Observed No. Of SSI	No. Of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Aiken Regional Medical Center	1	192	1.3	0.75	0.02	- 4.21	Not Different
Barnwell County Hospital	0	11	0.1	0.00	0.00	- 48.60	Not Different
Carolina Pines Regional Medical Center	0	100	0.7	0.00	0.00	- 5.35	Not Different
Carolinas Hospital System	1	222	1.5	0.65	0.02	- 3.64	Not Different
Chester Regional Medical Center	0	20	0.1	0.00	0.00	- 26.73	Not Different
Chesterfiel d General Hospital	0	77	0.5	0.00	0.00	- 6.94	Not Different

Hospital	Observed No. Of SSI	No. Of Procedures *	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Clarendon Memorial Hospital	0	52	0.4	0.00	0.00	- 10.28	Not Different
Kershaw County Medical Center	0	114	0.8	0.00	0.00	- 4.69	Not Different
Lake City Communit y Hospital	0	18	0.1	0.00	0.00	- 29.70	Not Different
Lexington Medical Center	7	381	2.6	2.66	1.07	- 5.49	Higher
Marion County Medical Center	0	65	0.4	0.00	0.00	- 8.23	Not Different
Marlboro Park Hospital	0	19	0.1	0.00	0.00	- 28.14	Not Different
McLeod Medical Center - Darlington	*	1	*	*	*	- *	*
McLeod Medical Center - Dillon	1	58	0.4	2.50	0.06	- 13.92	Not Different
McLeod Medical Center - Pee Dee	0	287	2.0	0.00	0.00	- 1.86	Not Different
Newberry County Memorial Hospital	0	23	0.2	0.00	0.00	- 23.25	Not Different
Palmetto Health Baptist	2	172	1.2	1.69	0.20	- 6.09	Not Different

Hospital	Observed No. Of SSI	No. Of Procedures [*]	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			Statistical Interpretation [‡]
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval		
					Lower	Upper	
Palmetto Health Richland	1	178	1.2	0.81	0.02	- 4.54	Not Different
Piedmont Medical Center	0	178	1.2	0.00	0.00	- 3.00	Not Different
Providence Hospital Downtown	2	100	0.7	2.90	0.35	- 10.47	Not Different
Providence Hospital Northeast	0	41	0.3	0.00	0.00	- 13.04	Not Different
Regional Medical Center Of Orangebur g/Calhoun Counties	0	137	0.9	0.00	0.00	- 3.90	Not Different
Springs Memorial Hospital	2	106	0.7	2.73	0.33	- 9.88	Not Different
Tuomey	0	131	0.9	0.00	0.00	- 4.08	Not Different

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

Surgical Site Infection (SSI) Standardized Infection Ratio (SIR)	
Table 7	
Procedure: Cholecystectomy (Gallbladder)	

Coastal (Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper, Williamsburg)

Reporting Period: January 1, 2008 – November 30, 2008

Hospital	Observed No. Of SSI	No. Of Procedures*	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Beaufort Memorial Hospital	0	163	1.1	0.00	0.00 - 3.28	Not Different	
Bon Secours - St. Francis Xavier Hospital	1	255	1.8	0.57	0.01 - 3.17	Not Different	
Coastal Carolina Medical Center	0	17	0.1	0.00	0.00 - 31.45	Not Different	
Colleton Medical Center	0	74	0.5	0.00	0.00 - 7.22	Not Different	
Conway Medical Center	1	150	1.0	0.97	0.02 - 5.38	Not Different	
East Cooper Regional Medical Center	1	82	0.6	1.77	0.04 - 9.85	Not Different	

Hospital	Observed No. Of SSI	No. Of Procedures *	Statistically “Expected” No. of SSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = Observed “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [‡]
					Lower	Upper	
Williamsburg Regional Hospital	*	1	0.0	*	* - *	*	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few procedures. Reporting on too few procedures is a risk to patient confidentiality. If five or fewer surgical procedures are performed, the report for the number of infections will be deferred until more procedures are performed.

**Table 1: Adult Medical - Surgical Critical Care Units
Central Line Associated Bloodstream Infection (CLABSI)
Standardized Infection Ratio (SIR) Table
July 1, 2007 – November 30, 2008**

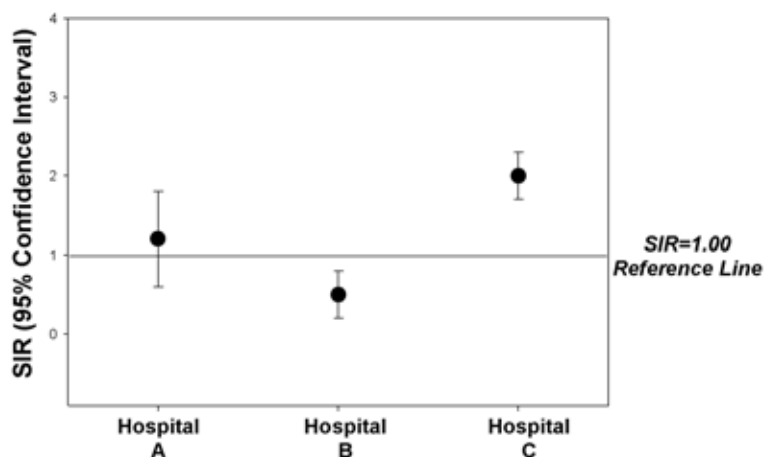
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the central line associated bloodstream infection (CLABSI) experience among a group of reported locations to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital’s infection rate is similar (not significantly different) from “expected” (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Central Line Associated Bloodstream Infection (CLABSI) Standardized Infection Ratio (SIR)
Table 1

Statewide

Location: Adult Medical/Surgical Critical Care Unit

Reportable Period: July 2007 – November 2008

Hospital	Observed No. Of CLABSI	No. of Central Line Days*	Statistically “Expected” No. of CLABSI‡	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation†
					Lower	Upper	
Abbeville Area Medical Center	0	113	0.2	0.00	0.00 - 21.76	Not Different	
Aiken Regional Medical Center	13	4967	7.5	1.74	0.93 - 2.98	Not Different	
AnMed Health Medical Center	7	4259	6.4	1.10	0.44 - 2.26	Not Different	
Barnwell County Hospital	*	24	*	*	* - *	*	
Bon Secours - St. Francis Xavier Hospital	4	1952	2.9	1.37	0.37 - 3.50	Not Different	
Cannon Memorial Hospital	0	139	0.2	0.00	0.00 - 17.69	Not Different	
Carolina Pines Regional Medical Center	3	868	1.3	2.30	0.48 - 6.73	Not Different	

Hospital	Observed No. Of CLABSI	No. of Central Line Days*	Statistically “Expected” No. of CLABSI‡	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			Statistical Interpretation†
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		
					Lower	Upper	
Chester Regional Medical Center	0	166	0.2	0.00	0.00 - 14.82	Not Different	
Chesterfield General Hospital	0	109	0.2	0.00	0.00 - 22.56	Not Different	
Coastal Carolina Medical Center	0	115	0.2	0.00	0.00 - 21.39	Not Different	
Colleton Medical Center	6	964	1.4	4.15	1.52 - 9.03	Higher	
Conway Medical Center	1	818	1.2	0.81	0.02 - 4.54	Not Different	
East Cooper Regional Medical Center	3	630	0.9	3.17	0.66 - 9.28	Not Different	
Greenville Memorial Hospital	31	6477	13.0	2.39	1.63 - 3.40	Higher	
Greer Memorial Hospital	0	219	0.4	0.00	0.00 - 8.38	Not Different	
Hampton Regional Medical Center	0	31	0.0	0.00	0.00 - 79.33	Not Different	
Hillcrest Memorial Hospital	0	557	0.8	0.00	0.00 - 4.42	Not Different	
Hilton Head Regional Medical Center	5	1156	1.7	2.88	0.94 - 6.73	Not Different	

Hospital	Observed No. Of CLABSI	No. of Central Line Days*	Statistically “Expected” No. of CLABSI‡	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = Observed “Expected”	95% Confidence Interval (CI)		Statistical Interpretation†
					Lower	Upper	
Kershaw County Medical Center	4	866	1.3	3.08	0.84 - 7.88	Not Different	
Laurens County Healthcare System	1	346	0.5	1.93	0.05 - 10.74	Not Different	
Lexington Medical Center	7	4644	7.0	1.00	0.40 - 2.07	Not Different	
Loris Healthcare System	0	1016	1.5	0.00	0.00 - 2.42	Not Different	
Marion County Medical Center	2	174	0.3	7.66	0.93 - 27.68	Not Different	
Marlboro Park Hospital	0	190	0.3	0.00	0.00 - 12.94	Not Different	
Mary Black Memorial Hospital	1	1118	1.7	0.60	0.01 - 3.32	Not Different	
McLeod Medical Center - Dillon	0	94	0.1	0.00	0.00 - 26.16	Not Different	
Oconee Memorial Hospital	0	1217	1.8	0.00	0.00 - 2.02	Not Different	
Palmetto Baptist Medical Center - Easley	1	698	1.0	0.96	0.02 - 5.32	Not Different	

Hospital	Observed No. Of CLABSI	No. of Central Line Days*	Statistically “Expected” No. of CLABSI‡	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			Statistical Interpretation†
				Hospital SIR = Observed “Expected”	95% Confidence Interval (CI)		
					Lower	Upper	
Palmetto Health Baptist	8	2553	3.8	2.09	0.90 - 4.12	Not Different	
Piedmont Medical Center	7	2880	4.3	1.62	0.65 - 3.34	Not Different	
Providence Hospital Downtown	0	2562	3.8	0.00	0.00 - 0.96	Lower	
Providence Hospital Northeast	0	240	0.4	0.00	0.00 - 10.25	Not Different	
Regional Medical Center Of Orangebur g/Calhoun Counties	16	3335	5.0	3.20	1.83 - 5.19	Higher	
Roper Hospital Inc.	12	5823	8.7	1.37	0.71 - 2.41	Not Different	
Springs Memorial Hospital	3	1121	1.7	1.78	0.37 - 5.21	Not Different	
St. Francis - Downtown	0	4628	6.9	0.00	0.00 - 0.53	Lower	
Summervil le Medical Center	1	750	1.1	0.89	0.02 - 4.95	Not Different	
Trident Medical Center	22	7404	11.1	1.98	1.24 - 3.00	Higher	
Tuomey	1	1891	2.8	0.35	0.01 - 1.96	Not Different	
Upstate Carolina Medical Center	0	331	0.5	0.00	0.00 - 7.43	Not Different	
Village Hospital	*	13	*	*	* - *	*	

Hospital	Observed No. Of CLABSI	No. of Central Line Days*	Statistically “Expected” No. of CLABSI [‡]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Wallace Thomson Hospital	0	161	0.2	0.00	0.00 - 15.28	Not Different	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

* Too few central line days. Reporting on too few procedures is a risk to patient confidentiality. If there are twenty-five (25) or fewer central line days, the report for the number of infections will be deferred until there are more central line days.

**Table 2: Adult Medical Critical Care Units Central Line Associated Bloodstream Infection (CLABSI) Standardized Infection Ratio (SIR) Table
July 1, 2007 – November 30, 2008**

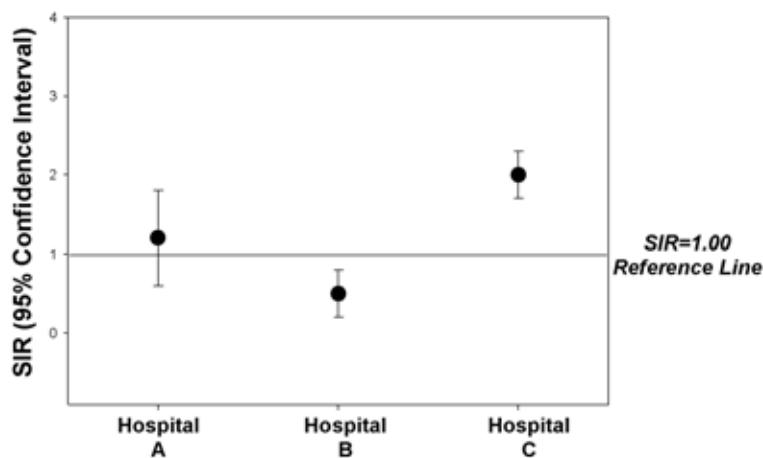
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the central line associated bloodstream infection (CLABSI) experience among a group of reported locations to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital’s infection rate is similar (not significantly different) from “expected” (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Central Line Associated Bloodstream Infection (CLABSI) - Standardized Infection Ratio (SIR)
Table 2

Statewide

Location: Adult Medical Critical Care Unit

Reporting Period: July 1, 2007 – November 1, 2008

Hospital	Observed No. Of CLABSI	No. of Central Line Days	Statistically “Expected” No. of CLABSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Beaufort Memorial Hospital	3	1615	3.9	0.77	0.16	- 2.26	Not Different
Carolinas Hospital System	7	2148	5.2	1.36	0.55	- 2.80	Not Different
Clarendon Memorial Hospital	0	459	1.1	0.00	0.00	- 3.35	Not Different
Georgetow n Memorial Hospital	1	452	1.1	0.92	0.02	- 5.14	Not Different
Grand Strand Regional Medical Center	3	1519	3.6	0.82	0.17	- 2.40	Not Different
McLeod Medical Center – Pee Dee	2	2574	6.2	0.32	0.04	- 1.17	Not Different
MUSC Medical Center	18	4844	11.6	1.55	0.92	- 2.45	Not Different
Palmetto Health Richland	19	3310	7.9	2.39	1.44	- 3.74	Higher

Self Regional Healthcare	4	1490	3.6	1.12	0.30	2.86	Not Different
Spartanburg Regional Medical Center	1	1496	3.6	0.28	0.01	1.55	Not Different
Waccamaw Community Hospital	4	676	1.6	2.47	0.67	6.31	Not Different

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

**Table 3: Adult Surgical Critical Care Units Central Line Associated Bloodstream Infection (CLABSI) Standardized Infection Ratio (SIR) Table
July 1, 2007 – November 30, 2008**

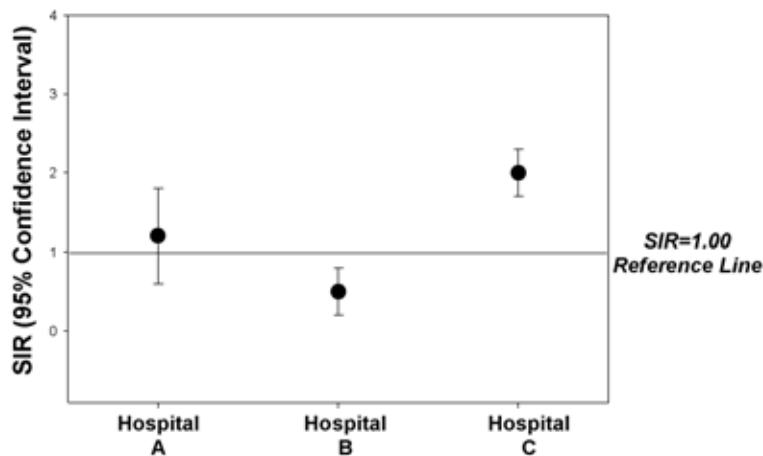
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the central line associated bloodstream infection (CLABSI) experience among a group of reported locations to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital’s infection rate is similar (not significantly different) from “expected” (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Central Line Associated Bloodstream Infection (CLABSI) Standardized Infection Ratio (SIR)
Table 3

Statewide

Location: Adult Surgical Critical Care Unit

Reporting Period: July 2007 – November 2008

Hospital	Observed No. Of CLABSI	No. of Central Line Days	Statistically “Expected” No. of CLABSI [†]	Comparison to Standard Population SIR = 1 (Observed = Expected)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Carolinas Hospital System	5	1160	2.67	1.87	0.61	- 4.37	Not Different
Grand Strand Regional Medical Center	5	1444	3.32	1.51	0.49	- 3.51	Not Different
McLeod Medical Center – Pee Dee	0	2410	5.54	0.00	0.00	- 0.67	Lower
Piedmont Medical Center	0	145	0.33	0.00	0.00	- 11.18	Not Different
Spartanbu rg Regional Medical Center	6	2943	6.77	0.89	0.33	- 1.93	Not Different

[†] SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

[‡] Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

**Table 4: Pediatric Critical Care Units (combinations of Pediatric Medical – Surgical)
Central Line Associated Bloodstream Infection (CLABSI)
Standardized Infection Ratio (SIR) Table
January 1, 2008 – November 30, 2008**

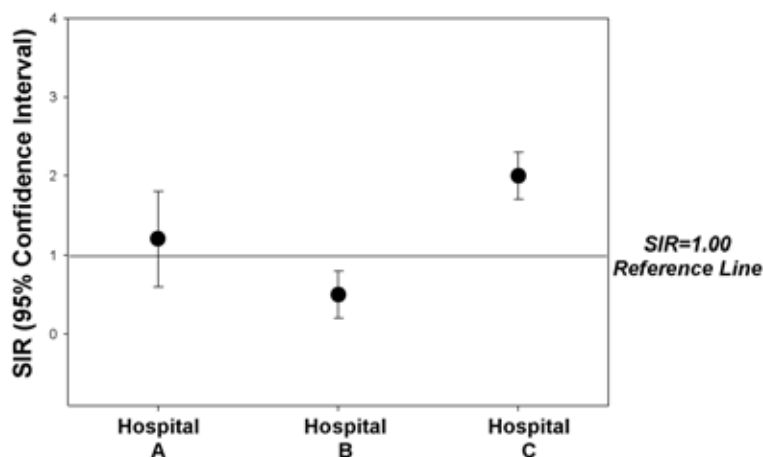
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the central line associated bloodstream infection (CLABSI) experience among a group of reported locations to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. The confidence interval (CI) gives us the range within which the TRUE value will fall 95% of the time, assuming that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital’s infection rate is similar (not significantly different) from “expected” (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Central Line Associated Bloodstream Infection (CLABSI) Standardized Infection Ratio (SIR)
Table 4

Statewide

Location: Pediatric Critical Care Unit

Reporting Period: July 2007 – November 2008

Hospital	Observed No. Of CLABSI	No. of Central Line Days	Statistically “Expected” No. of CLABSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR	95% Confidence Interval (CI)		Statistical Interpretation [‡]
					Lower	Upper	
Greenville Memorial Hospital	3	923	2.7	1.12	0.23	- 3.28	Not Different
McLeod Medical Center - Florence	0	289	0.8	0.00	0.00	- 4.40	Not Different
MUSC Medical Center	11	1437	4.2	2.64	1.32	- 4.72	Higher
Palmetto Health Richland	3	1240	1.2	2.42	0.50	- 7.07	Not Different
Spartanbu rg Regional Medical Center	2	148	0.4	4.66	0.56	- 16.83	Not Different

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

**Table 5: Inpatient locations in Acute Care Hospitals licensed for 150 beds or less (excluding Long Term Acute Care –LTAC and Rehab)
Central Line Associated Bloodstream Infection (CLABSI)
Standardized Infection Ratio (SIR) Tables
January 1, 2008 – November 30, 2008**

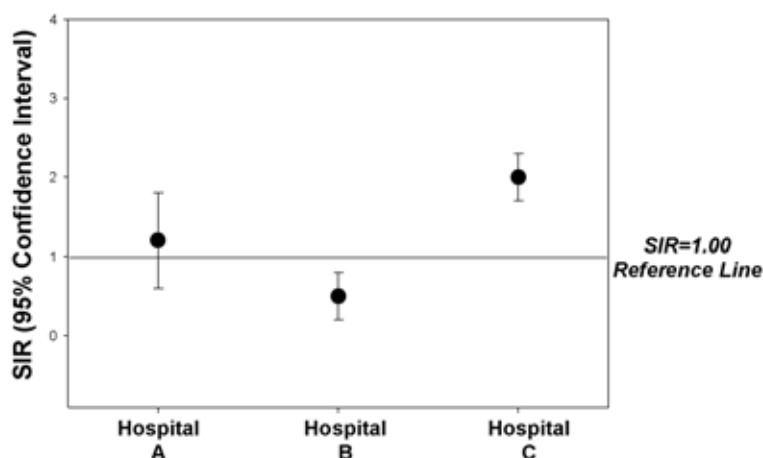
See [Definition of Terms](#) at the [Healthcare Acquired Infections Report](#) website for a more in-depth explanation of Standardized Infection Ratios.

Standardized Infection Ratio: The Standardized Infection Ratio (SIR) is a summary measure used to compare the central line associated bloodstream infection (CLABSI) experience among a group of reported locations to that of a standard population. It is the *observed* number of infections divided by the *expected* number of infections.

For HAI reports, the standard population comes from NHSN data reported from all hospitals using the system. “Expected” *is based on historical data for those procedures at the national level.

Confidence Intervals (CIs)

Because we can never obtain a hospital’s true “population” data (e.g. all patients for all time), we use statistical procedures to “estimate” various measurements using “sample” data. Since estimates have “variability” we use 95% confidence limits (or intervals) to describe the variability around the estimate. These limits (or intervals) give us the range within which the TRUE value will fall 95% of the time, given that the sample data are reflective of the true population. Below is a graphical example of what CIs would look like if they were in graph form.



Graph Interpretation:

Hospital A: If the 95% confidence interval crosses over the reference line of 1.0, we conclude that the hospital's infection rate is similar (not significantly different) from "expected" (predicted).

Hospital B: If the 95% confidence interval falls completely below the reference line of 1.0, we conclude that the hospital's infection rate is significantly lower than "expected" (predicted).

Hospital C: If the 95% confidence interval falls completely above the reference line of 1.0, we conclude that the hospital's infection rate is significantly higher than "expected" (predicted).

All conclusions are based on the assumption that the hospital's patient population is similar to the NHSN pooled patient population.

***Please note that the "expected" number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.**

Central Line Associated Bloodstream Infection (CLABSI) Standardized Infection Ratio (SIR)
Table 5

Statewide

Location: Surgical Inpatient Ward

Reporting Period: January 1, 2008 – November 30, 2008

Hospital	Observed No. Of CLABSI	No. of Central Line Days	Statistically “Expected” No. of CLABSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [‡]
					Lower	Upper	
Carolina Pines Regional Medical Center	2	431	0.6896	2.90	0.35	- 10.48	Not Different
Kershaw County Medical Center	1	703	1.1248	0.89	0.02	- 4.95	Not Different
Patewood Memorial Hospital	0	29	0.0464	0.00	0.00	- 79.50	Not Different

[†] SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

[‡] Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

Central Line Associated Bloodstream Infection (CLABSI) Standardized Infection Ratio (SIR)							
Table 5							
Statewide							
Location: Medical Inpatient Ward							
Reporting Period: January 1, 2008 – November 30, 2008							
Hospital	Observed No. Of CLABSI	No. of Central Line Days	Statistically “Expected” No. of CLABSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [‡]
					Lower	Upper	
Carolina Pines Regional Medical Center	5	968	1.7	2.87	0.93	- 6.70	Not Different
Charleston Memorial Hospital	8	925	1.7	4.80	2.07	- 9.47	Higher
Colleton Medical Center	2	1902	3.4	0.58	0.07	- 2.11	Not Different
Kershaw County Medical Center	2	933	1.7	1.19	0.14	- 4.30	Not Different
Lake City Community Hospital	0	65	0.1	0.00	0.00	- 31.53	Not Different
Wallace Thomson Hospital	0	84	0.2	0.00	0.00	- 24.40	Not Different

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

Central Line Associated Bloodstream Infection (CLABSI) Standardized Infection Ratio (SIR)
Table 5

Statewide

Location: Step Down Unit

Reporting Period: January 1, 2008 – November 30, 2008

Hospital	Observed No. Of CLABSI	No. of Central Line Days*	Statistically “Expected” No. of CLABSI‡	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation†
					Lower	Upper	
Carolina Pines Regional Medical Center	1	291	0.7	1.43	0.04	- 7.98	Not Different
East Cooper Regional Medical Center	0	570	1.4	0.00	0.00	- 2.70	Not Different
Laurens County Healthcare System	0	258	0.6	0.00	0.00	- 5.96	Not Different
St. Francis - Eastside	*	1	*	*	*	- *	*
Upstate Carolina Medical Center	0	236	0.6	0.00	0.00	- 6.51	Not Different

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

- * Too few central line days. Reporting on too few procedures is a risk to patient confidentiality. If there are twenty-five (25) or fewer central line days, the report for the number of infections will be deferred until there are more central line days.

Central Line Associated Bloodstream Infection (CLABSI) Standardized Infection Ratio (SIR)
Table 5

Statewide

Location: Medical/Surgical Inpatient Ward

Reporting Period: January 1, 2008 – November 30, 2008

Hospital	Observed No. Of CLABSI	No. of Central Line Days [*]	Statistically “Expected” No. of CLABSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [‡]
					Lower	Upper	
Abbeville Area Medical Center	0	52	0.1	0.00	0.00	- 54.57	Not Different
Allendale County Hospital	1	296	0.4	2.60	0.06	- 14.48	Not Different
Cannon Memorial Hospital	1	158	0.2	4.87	0.12	- 27.13	Not Different
Chesterfiel d General Hospital	0	129	0.2	0.00	0.00	- 22.00	Not Different
Coastal Carolina Medical Center	0	78	0.1	0.00	0.00	- 36.38	Not Different
Colleton Medical Center	1	1307	1.7	0.59	0.01	- 3.28	Not Different
East Cooper Regional Medical Center	1	917	1.2	0.84	0.02	- 4.67	Not Different
Edgefield County Hospital	*	0	*	*	*	- *	*

Hospital	Observed No. Of CLABSI	No. of Central Line Days [*]	Statistically “Expected” No. of CLABSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [†]
					Lower	Upper	
Fairfield Memorial Hospital	*	0	*	*	*	-	*
Georgetow n Memorial Hospital	5	774	1.0	4.97	1.61	-	11.60 Higher
Greer Memorial Hospital	1	426	0.6	1.81	0.05	-	10.06 Not Different
Hampton Regional Medical Center	0	215	0.3	0.00	0.00	-	13.20 Not Different
Hillcrest Memorial Hospital	0	631	0.8	0.00	0.00	-	4.50 Not Different
Hilton Head Regional Medical Center	1	1137	1.5	0.68	0.02	-	3.77 Not Different
Laurens County Healthcare System	2	469	0.6	3.28	0.40	-	11.85 Not Different
Loris Communit y Hospital	0	373	0.5	0.00	0.00	-	7.61 Not Different
Marion County Medical Center	0	544	0.7	0.00	0.00	-	5.22 Not Different
Marlboro Park Hospital	0	124	0.2	0.00	0.00	-	22.88 Not Different
McLeod Medical Center - Darlington	0	471	0.6	0.00	0.00	-	6.02 Not Different

Hospital	Observed No. Of CLABSI	No. of Central Line Days [*]	Statistically “Expected” No. of CLABSI [†]	Comparison to Standard Population SIR = 1 (Observed = “Expected”)			
				Hospital SIR = <u>Observed</u> “Expected”	95% Confidence Interval (CI)		Statistical Interpretation [‡]
					Lower	Upper	
McLeod Medical Center - Dillon	0	193	0.3	0.00	0.00 - 14.70	Not Different	
Newberry County Memorial Hospital	0	248	0.3	0.00	0.00 - 11.44	Not Different	
Palmetto Baptist Medical Center - Easley	2	625	0.8	2.46	0.30 - 8.89	Not Different	
Providence Hospital Northeast	0	654	0.9	0.00	0.00 - 4.34	Not Different	
Summervil le Medical Center	0	1438	1.9	0.00	0.00 - 1.97	Not Different	
Upstate Carolina Medical Center	1	314	0.4	2.45	0.06 - 13.65	Not Different	
Waccama w Communit y Hospital	3	1060	1.4	2.18	0.45 - 6.36	Not Different	
Wallace Thomson Hospital	0	259	0.3	0.00	0.00 - 10.96	Not Different	
Williamsb urg Regional Hospital	*	15	*	*	* - *	*	

† SC Hospital SIR Statistical Interpretation

- Similar = Statistically not different than the standard population
- Lower = Statistically lower than the standard population
- Higher = Statistically higher than the standard population

‡ Please note that the “expected” number of infections does not mean that you expect to get an infection when you go into the hospital for surgery. The goal is for the hospital is to prevent all HAIs.

- * Too few central line days. Reporting on too few procedures is a risk to patient confidentiality. If there are twenty-five (25) or fewer central line days, the report for the number of infections will be deferred until there are more central line days.